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ORIGINAL COMMUNICATIONS.

DESTRUCTION OF THE TROPHIC FUNCTION AS AN ELEMENT IN DETERMINING THE LOCALIZATION OF INFECTION, ESPECIALLY IN THE JOINT AND BONE DISEASES.

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The inflammatory diseases of the joints, like most diseases elsewhere, depend upon the presence of a parasite. In a diseased individual not all the joints are affected. The susceptibility of a particular joint must depend on some anatomical, physiological, or pathological peculiarity. It is my purpose to call attention to one of the minor causes, which in a few cases seems to result in a point of least resistance, and thus determine infection.

In quite a large number of cases of tubercular joint-disease, where excision has, and where it has not, been performed, the patients have ultimately developed symptoms of posterior spinal sclerosis. This phenomenon is capable of various explanations. We might think that the tubercular infection was secondary to syphilis, which is often the primary cause of the sclerosis. Allowing this, there are cases of non-inflammatory destructive joint-disease occurring early and late in *locomotor ataxia* which are not so accounted for. They are thought to depend on the destruction of so-called trophic centres in the cord. It may not be amiss to review the proofs of the existence of the trophic function of the nervous system.

(1) The presence of an adequate supply of blood is recognized by all as necessary to the vegetation of a part. It seems, also, that a part which does not perform its inherited function soon falls into a condition of atrophy. Besides these common forms of altered growth, there occurs after the injury of a nerve trunk, or after its section, a peculiar form of perverted nutrition, which is observed in the skin as a glazing, in the muscles as a degenerative atrophy, and in the bones and joint-ligaments by corresponding involuntary changes. Such changes sometimes follow injury of the cord, and in these cases there is no interference with other nervous manifestations. From a consideration of these and similar cases, and experiments on animals, the idea of a trophic function has been deduced.

If the nervous system has a trophic function, it may be exercised through the sensory or motor nerves, or through a separate set of nerves. These nerves may derive their trophic impulse either from nerve centres which perform this office alone, or from centres having a mixed function, *i. e.*, from motor or sensory centres.

In order that the trophic function of a part may be abolished, and all other ner-

vous phenomena remain undisturbed, it is necessary to pre-suppose one of the following conditions:

1. Unmixed trophic centres and mixed nerves.

2. Mixed centres and unmixed trophic nerves.

3. Separate trophic centres and separate trophic nerves.

Let us consider this subject from an embryological, anatomical, physiological, and a pathological standpoint.

a. That some influence is necessary to the division and growth of a cell, is seen in the ovum, which requires impregnation. Balfour has shown that the nerve-fibres are outshoots of the central nerve-cells. If this is always the case, our first and second suppositions are absurd.

b. Anatomy has little to offer. The best staining methods have so far failed to discover any difference in the appearance of functionally different nerve-fibres (Schwalbe). At most, the sum of all the nerve-fibres which enter or leave the cord is greater, by far, than the number which pass from the cord into the medulla.

c. Physiology only demonstrates that there is a separate trophic function in some animals, at least, and in some localities, which may be interrupted without disturbing sensation, motion, or special sense in the part. Thus the section of a certain portion of the fifth nerve determines a haziness and then destruction of the cornea on the same side without any interference with sensation. Section of the nerves surrounding the second cervical ganglion in cats results in the loss of all the hair over definite areas of the ears and head. This takes place uniformly in the course of a very few days. Microscopical examination demonstrates the degeneration of the nerves leading up to the hair bulbs, which are represented only by spots of pigment. These investigations have been carried out very completely and carefully by Joseph, and he is led to conclude that there are not only trophic centres but also trophic nerves.

Section of the cord through definite segments does not seem to interfere with the trophic function of the paralyzed or anæsthetic side. Destruction or removal of a portion of the motor area in the brain does not result in trophic disturbance in the paralyzed area. There are also other physiological demonstrations which lead to the conclusion that the trophic nerve-centres are not situated in the brain.

d. Pathology presents a great array of facts which it is very hard to explain without the existence of the trophic function. In *polyomyelitis anterior acuta* certain multipolar nerve-cells in the anterior gray horns are uniformly degenerated, as well as a portion of the anterior nerve-roots. The same pathological condition is present in progressive muscular atrophy. In injury or destruction of a large nerve-trunk it is a common thing to see glazing of the skin, loss of hair, defect in the nails, anchylosis of joints, atrophy of muscles, and disappearance of the *panniculus adiposus*, which conditions do not occur in loss of function through the destruction of the cerebral motor-area.

After compression of the cord by a displacement of the vertebræ, when death does not immediately occur, a number of very peculiar trophic disturbances are observed. Bed-sores occur in different places, depending upon the seat of the destruction. The muscles waste, and the resulting connective-tissue contracts, and greatly deforms the limbs. Repair goes on very slowly, or not at all, after the slightest injury. The circulation is modified by changes in the blood-vessels.

After puncture of the cord with a sharp instrument, in the region of the second lumbar vertebra, complete destruction of the ligaments of the knee-joint has been observed to follow in the remarkably short space of eight days (Sonnenberg).

In that peculiar and rare tropho-neurosis which sometimes affects one side of the

face after the acute exanthemata and diphtheria, termed Progressive Facial Hemiatrophy, we have what seems to be a destruction of the trophic function of the fifth nerve, like that so frequently produced artificially in the laboratory.

These phenomena are easily reconciled if we admit the existence of trophic centres. The embryology of the lower animals indicates that the nerve is simply a continuation or an outgrowth of the nerve-cell, and so the conclusion is forced upon us that there are also trophic nerves. This is further demonstrated by the experiments of Joseph. Then I believe that the conclusion is inevitable, which was stated in the third proposition at the beginning of this section, *i. e.*, "*There exist separate trophic centres and separate trophic nerves.*"

In regard to the location of these trophic centres, it is safe to say that some of them are situated in the anterior gray horns; others are found in the posterior gray horns or in the ganglia which are located on the cranial and spinal nerves.

(2) In volume 8 of the *American Journal of Medical Sciences*, Dr. J. K. Mitchell called attention to some forms of "rheumatism" which he supposed to be due to a disease of the cord. Acting on this idea he recommended and practiced a very rational mode of treatment: In one case, cupping the spine where the nerve-trunk which supplied the affected limb entered the cord; in another, using immobilizing apparatus. At least one case was associated with locomotor ataxia. The whole matter was forgotten for many years until Charcot gave his classical lectures from which the disease has taken its name.

There has been a lively discussion as to the cause of this disease. Surgeons have paid very little attention to the evidence of the neurologists, and have always looked upon the existence of a neuropathic joint-disease with a condescending distrust. Therefore, all the cases have been described by the neurologists to whom the patients had previously come with evident nervous symptoms. This explains why so few cases have been observed as the initial symptom of disease of the cord.

Only a few post-mortem examinations have been made. A great majority of the cases have been reported many years, and by those who practiced very imperfect methods of examination. On account of these imperfections in the literature, many of the questions which might perhaps be answered by the recorded cases, if more accurately observed, must still be considered under judgment.

We have considered the evidence, and conclude that there are trophic nerve-centres and trophic nerves. It seems that those that control the nutrition of the skin are located in the posterior gray horns of the cord, while those that control the nutrition of the bones and joints are located in the anterior gray matter, or in the ganglia on the posterior nerve-roots. When these latter trophic cells are destroyed, either by mechanical violence or in the process of disease, the joint or bone or other tissue supplied by them fails in some way to vegetate. The cells of the joint structure undergo involution, degeneration, necrosis, and are more or less completely removed. If the destruction of these trophic cells is incomplete, the consequent changes in bone or joint fall short of complete destruction. There is no reason why such trophic changes in a joint may not originate either from a focal circumscribed disease in the gray matter, or from the involvement of the trophic centres in a system sclerosis.

It is well known that the initial symptoms of posterior spinal sclerosis are very different in different cases, which ultimately resemble each other closely. Thus, in one case — considering now the condition of the sensory nerves alone—there is no inco-ordination. The patient stands and walks well both with the eyes open and with them closed. He is able to recognize slight differences in weight, but the delicate or superficial sensibilities, as determined by the anæsthesiometer, are much

reduced or entirely wanting. In another case where sensibility to light touch is unimpaired, co-ordination of motion is lost more or less completely, except as controlled by the eye, thus showing the destruction of the deep sensibilities—that is to say, in the first case there is loss of cutaneous sensibility, in the second, of muscular sensibility. Similar comparisons may be made in regard to the thermal sense, and the cutaneous and deep reflexes. When these cases have advanced far enough, the different forms of sensibility are completely or almost completely destroyed, and cases which were at first scarcely recognizable as the same disease become almost identical. In one case the deep muscular sense is first lost; in another, the sense of pain; in another, the sense to light touch; in another, the thermal sensibility; in another, deep reflexes; in another, the superficial reflexes; and in still another, the condition of perspiration. Then follow the remaining sensibilities one after another, as the centres in the cord which elaborate these impressions are destroyed.

In the same manner, we may suppose that the trophic cells are first destroyed, and that the resulting joint-disease is the first symptom of sclerosis. When the other trophic centres are unaffected, the other parts of the limb are unaffected.

We might expect that a joint on one side being affected, the centres of the trophic influence of the other, lying so near in the opposite gray horn, would be likely to suffer also. This appears to be the case. Out of one hundred and ten cases which form the basis of this study, symmetrical joints were attacked twenty-six times or in about one-fifth of the cases, while in only nine cases were asymmetrical joints affected (Rotter).

In support of this hypothesis there are many interesting clinical observations. Joint-diseases have already been recognized as the result of contusion, section, puncture, gunshot wound, and compression of the cord. In syringomyelitis, joint-diseases exactly resembling those of tabes have been observed. In the growth of a tumor of the cord, joint-disease has suddenly appeared.

Dissection of affected joints shows a remarkable disappearance of the nerves.

Experimental joint-disease has not been produced.

Adamkiewicz has demonstrated a very complex double circulation for the ganglion cell, which may have some influence in determining its destruction by thrombosis or embolism. It is, briefly, an enlargement of a little artery into a hollow sack, in which the cell is found. This sack is perforated in three or four places for the passage of the poles of the cell and for the vein. Thus the ganglion-cell is bathed on all sides by arterial blood. The venous blood passes to the interior of the cell and there surrounds the nucleus as a bladder-like cavity. It gives off one or two branches, which perforate the arterial sack and empty into the nearest vein. An idea of the arrangements of the blood-vessels may be obtained from Figure 155, Volume II of Quain's Anatomy, 1882. The drawing was made for a different purpose.

The Neuropathic Joint-Disease occurs in two forms, the early or mild form, and the later or destructive form. Only a few cases of the former have been observed.

Perhaps the most important symptom of the disease is the sudden, painless, swelling of the joint. In a few hours, or, rarely, in the course of a day or two, the joint fills with a serous exudate, which is in some cases mixed with a small quantity of blood. At the same time, or after a few hours or a day, the soft parts about the joint become swollen, but the skin retains its normal color. In the case of the knee, the swelling extends to the ankle below and to the middle of the thigh above. Over this whole area the engorged veins show through the skin. The swelling resembles a myxœdema, and it is probably also due to a central nervous lesion. The swelling of the joint is not always the first symptom recognized. There are a number of cases in which painless

crepitus preceded swelling; and, in a few cases, spontaneous dislocation of the joint was the first recognizable symptom. The course of the disease is as painless as its beginning. When the knee is affected the patient goes about with the swollen and crepitating joint until the deformity and destruction have rendered the limb mechanically useless. The patient complains of the deformity rather than of the functional destruction. Exceptionally the disease begins with lightning pains in the limb, which are soon followed by the joint destruction.

Very often the knee-joint is unexpectedly dislocated without any assignable cause. Then examination shows the loss of the ends of the bones, or of the ligaments. Injury of the blood-vessels has caused alarming and almost fatal hæmorrhage into the connective-tissue space or into the joint.* These injuries are ordinarily painless. The first evidence the patient has of the mischief is the diminished mobility of the joint, or its swelling or discoloration. The resulting deformities are sometimes *genuvalgum* or *genuvarum*. When both knees have been affected, one has presented one deformity and one the other. In spite of such a condition the patient is able to go about on the waggling and creaking joint on account of the coincident anæsthesia. When the deformity has resulted in the total loss of the function of the joint, the application of splints puts the patient on his feet, and enables him to go about with stiff legs. Backward luxation of the tibia has been observed in fewer cases than would be expected from the frequent flail-like condition of the joint.

Very few cases have been observed in the mild or initiating stage. They begin as painless swellings of a joint without loss of function, and may continue in that condition for years. There is evident reason why they have been so rarely observed. They are painless, and occur in patients who are not under the care of physicians for other diseases. Hence they are considered trivial by the sufferer, and the advice of a physician is not sought. The profession, too, has paid little attention to neuropathic disease of the joints. There is every reason to think that they are more frequent than reports would indicate.

The number of neuropathic joints that become infected with the pus-microbes is not small. Out of Rotter's 112 cases seven suppurated, and in three cases no source of the infection could be assigned except auto-infection.

Blum (Charcot): Two years after the discovery of a serous fluid in the shoulder and knee joints by puncture, the case came to section, and they both contained pus.

Boucheret: Spontaneous dislocation of the hip-joint. Came to section on the thirty-first day of the disease. The joint was found infected.

Ponfick: Hip-joint. Unexplainable infection.

When we consider that the average duration of this disease is less than two years, the infection of seven or even of three cases by metastasis out of 112 cases is certainly a remarkably large percentage. While the anatomical changes in the rarer or milder form are less extensive, they are the same in kind, and the fact that the disease then extends through years, increases the chance of infection very materially. This is especially the case in tubercular infection, which is so slow in producing recognizable lesions. I am not able to find a case of tubercular joint-disease which occurred in a joint which was previously recognized to be the seat of neuropathic degeneration. In almost any table of a hundred cases of tubercular joint-disease one or two can be found that manifested signs of *posterior spinal sclerosis* within a few years after the

* The hæmorrhage which is sometimes found in the joint is due to mechanical destruction of the degenerated tissue containing a little blood-vessel.

The luxations are pure destruction luxations, and in no way due to the ordinary mechanical causes. This destruction may be in the bones, in the ligaments, or in the cartilage. The bones may be so shortened that they slip by one another in the ligaments like the ends of a flail. When the ligaments have been most affected by destruction the still healthy bones have nothing to hold them together except the soft parts. The cartilages are affected only with the other structures, and then slowly.

appearance of the joint-disease. We may in these cases suspect that the first anatomical change resulting from the central lesion was the degeneration of the joint apparatus. This produced a point of least resistance, determining the seat of the tubercular disease which first brought the patient to the surgeon. Then the other symptoms followed slowly and unrecognizably while the patient was under treatment for the joint affection.

Such a case is reported by Kummer (Deutsch. Zeitschr. f. Chir. 27, p. 7): A man of fifty died of tabes four years after the appearance of tubercular olecronitis.

The consideration of this subject leads to the following suggestions:

Central trophic disease does produce peripheral, involutionary degeneration, which determines the localization of infection in the peripheral part infected.

In all cases of joint disease, especially when painless, the possibility of a neuropathic origin should receive attention, and careful examination of the various nerve-functions should be instituted.

In all cases of multiple joint-tuberculosis, especially when symmetrical, the fear of a primary neuropathic origin renders the prognosis less favorable.

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125 STATE STREET.

EDITORIAL.

THE NEW NATIONAL QUARANTINE LAW.

The outbreak of yellow fever at several of our Gulf and South Atlantic ports has stimulated Congress to another spasmodic effort looking to the protection of the public from contagious and infectious diseases. The fearful epidemic in the Mississippi Valley ten years ago was followed by legislation creating a National Board of Health, and conferring upon it powers, and providing it with means to combat the dangers which then menaced the whole country. The Board formulated rules and planned measures which, in their operation, have secured to the country almost complete immunity up to the present season. It is true that when the emergency had passed and the threatened dangers diminished, the support to the National Board was withdrawn, and the machinery which it had created and the methods which it had devised were adopted and used with but little change by the Marine Hospital Service. The National Board still exists and its duties and powers are adequate to meet the emergencies. It is, however, not a political body, and its machinery can not be used for the purposes of free trade, nor for protection, only so far as human life and health are concerned. There is, therefore, for its support, no strong motive which appeals to the average Congressman. It is a gratification to know that something has been done, and that in the right direction. Provision is made in the act which has recently received the approval of the President, and which will be found elsewhere in our columns, for the establishment of quarantine stations at various points along the Atlantic, Gulf, and Pacific coasts to which infected ships may be sent for disinfection; in other words, "ship hospitals." This was one of the most important measures inaugurated by the National Board of Health in 1879. It is almost certain that in time the whole

subject of maritime quarantine will be placed under the direction of the General Government as it ought to be. The interior States are quite as much interested in this matter as those along the seaboard; in some instances, indeed, the interest of the States remote from the sea is greater than that of those at which vessels discharge their cargoes of freight and immigrants. This is apparent to any one at all familiar with the history of the epidemics which have invaded this country from abroad. The temporary control of this matter by the Marine Hospital Service may be a convenience, but there should be devised some more special and appropriate bureau or department, with well-defined powers and duties, and provided with the means necessary to not only cope with infection from abroad, but also to protect individual States from dangers that may threaten them from neighboring States. Millions are appropriated to the scientific and economic interests of our people, and we hail with pleasure this wise fact, but it would be a mark of still greater wisdom to regard human health and human life as a large part of the national wealth, and to give for their protection something of the same thought and means that is done for the preservation of our cattle, the development of our varied industries, and the scientific investigation of our natural history.

This will only be reached when there shall be a department of public health, or at least a bureau which shall be charged with this special subject. So far, the questions of vital statistics, including the life-tendencies, the morbidity, mortality, etc., have been under the direction of the Department of the Interior, and appear once in ten years with the innumerable other facts of the census reports, the accuracy of many of which is open to question. Protection from epidemics has hardly occupied the attention of our National Legislature excepting in the presence of the scourge. Such action has always been regarded as provisional. It is time that we should give to this subject the same attention that we do to national dangers of other kinds. "In peace prepare for war."

THE PARIS CONGRESS FOR THE STUDY OF TUBERCULOSIS.

The names of the physicians and veterinarians who took an active part in the recent congress for the study of tuberculosis, which was held at Paris on July 25 to 31, 1888, are mainly French. Denmark, Scotland, and Egypt are other nations represented.

Some of the work reported is simply confirmatory of work and opinions long since placed before the profession; some of it is new, and much of the reports consists largely of expressions of opinion upon facts long ago generally accepted.

Of the various subjects discussed by the congress, of great interest and importance, one is the question of the relative frequency of the occurrence of tuberculosis among the lower animals, and of its transmission from them to man. M. Bang, of Copenhagen, contended that milk from tuberculous cows contains no bacilli of tuberculosis unless the milk glands are tuberculous, and that the tumefaction which the localized infiltration causes in the udder can be detected easily and early.

M. Grissonnauche claimed that from the first, pulmonary tuberculosis in cattle is characterized by tumefaction of the retro-pharyngeal glands; there is interrupted respiration, and that a harsh friction sound is heard in auscultation. The cough is short and may be induced by sharp percussion blows upon the thorax, which evidently cause pain.

It was conceded that the degree of heat usually employed in cooking beef is not sufficient to kill the bacilli. It was admitted that the danger of infection to man through eating tuberculous beef is very slight, in Paris about six in one thousand, but nevertheless there were only three votes against a resolution which declared

that all animals affected in any way with tuberculosis should be seized and condemned as unfit for food.

A very interesting and able discussion of the relation of animal tuberculosis to consumption in man will be found at page 43 of the July number of the JOURNAL AND EXAMINER in a report of the proceedings at a recent meeting of The Medico-Chirurgical Society of Edinburgh.

At the Paris congress the opinion was expressed that all cow's milk should be boiled before being given to infants.

The custom of drinking fresh blood and eating raw meat among consumptives was strongly condemned because of the danger of infection from these sources.

M. Cornil, in a paper on "Tuberculosis of Mucous Surfaces," said that the discovery that the tubercle-bacillus can penetrate the unbroken mucous membrane is one of extreme importance. He reported a case of tuberculosis of the cervix in a woman who had no other tubercular lesions. He introduced tubercular matter into the vaginæ of several guinea-pigs, and later found upon examination that the corresponding uteri were tuberculous.

M. Salles read a communication in which he reports the finding of a new microbe in the lungs of phthisical patients, which is distinct and separate, may be grown in pure cultures, and which, when injected into the circulation of rabbits produces death, with uniform and characteristic symptoms.

M. La Forre reported that as the result of investigations upon the subject he had concluded that the influence of a tuberculous father is greater than that of a mother similarly affected.

M. De Brun, of Beyrut, Syria, in a communication on "The Antagonism Between Malarial Fever and Tuberculosis," affirmed his belief in such an antagonism. In his opinion tuberculosis is a disease of communities which are drained and in good sanitary condition. Sometimes one is boldest in expressing opinions about things of which he knows least, but nevertheless, and although M. De Brun's colleague, M. Piot, of Cairo, agreed with him, and the report mentions no attempts at refutation of such ideas, this seems like a bit of careless observation and worse deduction.

The president of the congress, M. Chauveau, in the course of the discussion of the subject, said, that in his opinion the dangers of tubercular inoculation through vaccination against variola, are so infinitesimal in comparison with the benefits of that procedure that they are not worthy of consideration.

M. Arloing reported unsuccessful attempts to secure immunity from inoculations of tubercular bacilli, by means of inoculations of both material from "scrofulous" glands, and of typhoid bacilli.

As the result of recent observation, M. Cornil and M. Toupet reaffirm the already fully established observation that all pathological tubercular tumors are not necessarily evidence of the disease tuberculosis.

This meeting was evidently one of interest and importance, notwithstanding the fact that much of the ground which was discussed has long since been amply and conclusively cultivated by their Teutonic neighbors.

CHOLERA AND INOCULATION.

A cable message from Paris, to the secular press of this country, recently announced that "The scientific event of the week, of course, has been the Russian Dr. Gamaleia's alleged discovery of a method of anti-cholera inoculation," and the reported statement by Pasteur that "I am so thoroughly convinced of Gamaleia's success that I would to-morrow, were there need, allow a test to be made upon my own person, and in so doing should run small risk." After the notoriety obtained in Spain by Ferran, and the outcome of his method of inoculation, the medical profession and the public have been slow to accept assurances of se-

curity from cholera, or even from septicæmia, as a result of inoculation, but the confident statement, alleged to have been made by so good authority as Pasteur, and the method of procedure of Dr. Gamaleia, may give some warrant of hope that prophylaxis may yet be secured in some such way against that scourge.

Pasteur is quoted as having said further: "Of course there was nothing novel in the idea of inoculation against cholera. The difficulty lay in applying the well-understood principles of vaccination to this new case as I had already applied them to hydrophobia, and as some one will one day apply them to tuberculosis and other diseases." All will wish that the confident anticipations of this eminent scientist and experimenter may be realized and that he may live to witness the fact. In the mean time, for the sake of humanity and science, let us hope that the claims of Dr. Gamaleia for his discovery will not share the fate of those made by the once notorious Ferran.

YELLOW FEVER.

Yellow fever has again appeared in the South, and the authorities at Jacksonville, Florida, are battling with it without any satisfactory result thus far. The lateness of the season when it appeared and the exceptionally cool weather of this summer give hope that, with the efficient quarantine regulations that it is said are being enforced, the disease may be confined to the territory now infected, and that it may soon be under control. The occasion affords an opportunity of testing the method of treatment suggested by Surgeon Sternberg of the United States Army, as the result of his recent investigations in the West Indies.

SOCIETY REPORTS.

CHICAGO MEDICAL SOCIETY.

REGULAR MEETING, May 7, 1888.

The President, J. H. Etheridge, M. D., in the chair.

Dr. J. L. GRAY presented a specimen of gunshot wound with rupture of the heart. The points of entrance and exit were quite small. The point of entrance was between the fifth and sixth ribs; the rupture was upward. The ball passed through the body and was taken out between the tenth and eleventh ribs. It was not at all marked—no scratches on it.

The integument was not much lacerated. A peculiar point about the injury to the pericardium was that it was so small.

Dr. FRANK CARY: A short time ago I read a case reported by Dr. Wescott, of a patient in the insane asylum who took a grain of atropia.

I distinctly remember a somewhat similar case which occurred at St. Luke's Hospital a few years ago. A woman about 24 years of age was acting in the capacity of assistant nurse, and one morning went to the medicine chest ostensibly to take some cough sirup, but she took down the sulphate of atropia bottle, a four-ounce vial which contained a solution of two grains atropia sulphate to the ounce. A patient who was in the room said she saw her take two teaspoonfuls. A few moments after she had taken the medicine and gone to work it was noticed that she was staggering about the ward. The nurse had her placed in bed, and the interne was summoned. He gave her ten or twelve grains of tannic acid. The pupils were widely dilated and the patient nearly unconscious when he was called into the ward. She took the poison at eight o'clock in the morning, and the interne saw her at nine. He gave her, also, in less than fifteen minutes, one-eighth grain morphine hypodermically, with a grain and a half of tartar emetic; fifteen minutes later he gave her another one-eighth grain of morphine, and one hour later one-fourth grain. The breathing at this time was quite noisy—there was a blowing expiratory sound. At this time he gave two ounces of the sulphate of magnesia. At 10.30 I saw the patient. The corners of the mouth were

drawn down; she had a pinched expression, and there was a peculiar flush of the whole face. Morphine was given in doses of one-eighth to one-fourth grain every two hours from ten o'clock until two. At 2.30 the patient vomited slightly; the respirations were very shallow, from eight to ten a minute. Shaking her produced no effect whatever, but by wetting a towel in cold water and slapping her it was found she would take deep inspirations. At this time hypodermics of brandy were given every few minutes. At five o'clock the respirations were shallow and the pulse 120. At 6 o'clock p. m. the pupils first reacted slightly to the hypodermics of morphine. At 7.30 the patient was completely paralyzed, the teeth chattered, and she had those peculiar tetanic convulsions which in the lower animals follow poisonous doses. The catheter was passsd several times during the day and small amounts of urine were withdrawn. During the night the catheter was passed without any result. At eleven o'clock the patient again vomited a small amount; the pupils were somwhat contracted. About midnight the respirations again became very shallow. Morphine was given and it was found necessary to use the battery for some time. Forty-eight hours after the ingestion of the atropine she was able to resume her duties.

Dr. F. TALIAFERRO reported a case of Œdema of the Glottis, as follows:

Mat. Daley, aged 22, of 353 South May street, Chicago, was taken with a chill, at 2 p. m., March 17, 1888, while on duty at the Grand Trunk depot, but did not leave for home till 5 p. m. Did not eat any supper. His mother gave him a hot drink and a hot mustard foot-bath and he went to bed. About 12 p. m. he vomited some greenish material. About 8 a. m. commenced to have some difficulty in breathing, and half an hour later he complained of some pain on the right side of his larynx in addition to the dyspnœa. Leeches were ordered to front of larynx about 9.15 a. m. At 10.30 a. m. a laryngeal examination not being satisfactory, the index finger revealed a stiff and swollen epiglottis. Dr. Taliaferro went to his office to prepare for tracheotomy, which he felt quite sure would be necessary. When he again reached the house he found the patient in the next room stretched out on a lounge, with his eyes staring, pupils dilated, countenance livid, and totally unconscious, looking as if each gasp would be his last. As there was no time to delay he cut as quickly as he could down upon the trachea, not considering the black and red blood which welled up successively through the incision, fixed the trachea with his left hand and cut into it and enlarged the opening and succeeded in getting the tube in without difficulty. Soon his pupils began to contract, gradually his eyelids began to close, and shortly afterwards he moved his head. Of course a good deal of blood flowed into the windpipe, which he coughed out, and this continued all the afternoon and evening.

Quite a high reaction followed his return to consciousness, his fever going up to 103°, and his pulse to 120. He gradually continued to get better until Wednesday afternoon when the tube was removed. The flesh wound healed rapidly, and in two days after removal he was not breathing through the wound at all.

Dr. J. L. GRAY desired to ask the members of the society whether it has been their experience that unusually large doses of bromides and chloral can be given in delirium tremens? At the Detention Hospital there are many cases of delirium tremens, and they take two or three times as large doses of bromide and chloral as other patients would take, apparently without any bad effect either as to the circulation or to the heart.

The PRESIDENT: With regard to the treatment of delirium tremens I wish to say that for ten or twelve years I have treated it, from the start, with chloral, the idea being to put a man to sleep as quickly

as possible. I have no hesitancy in giving thirty grains every hour until the patient goes to sleep. I watch the heart very closely until he does go to sleep. I received the idea from a physician in the hospital of Edinburgh. He said that until they commenced the chloral treatment of delirium tremens they had from three to ten beds occupied with these men, but now it was their custom to get the men out in forty-eight hours, and back to work. They commenced at once with large doses, giving whatever was necessary in the way of cathartics.

Dr. H. H. FROTHINGHAM reported a case of administration of chloral in delirium tremens, which was given between eight in the evening and six in the morning, half an ounce of chloral and an ounce of bromide of potassium. Two days afterward he was admitted to the County Hospital, and while the nurse was preparing some medicine for him, he suddenly fell over on the bed and began snoring, and expired without having had any medicine whatever. On post-mortem examination it was learned that he had small hæmorrhages at the base of the brain, due, probably, to his chronic alcoholism.

Dr. L. L. MCARTHUR desired to put a case on record. A patient was brought into the hospital suffering with sciatica, which he had endured for five or six years, in spite of every variety of treatment known to medical science, except stretching the nerve. He consented to have the nerve stretched. Proper preparations for the operation were made the night before, putting the patient in the best possible condition. At the operation the buttocks were shaved and scrubbed with a carbolized solution. A clean-cut incision was made over the course of the nerve, beginning at the margin of the gluteus maximus; the nerve was readily found, exposed, and stretched, and the wound was sealed with the strictest antiseptic precautions. It was so simple and clean cut a wound, and such careful precautions were taken to get primary union, that little or no doubt was anticipated as to the early and favorable healing of the wound. In fact, the patient was promised that he would do as several other cases in the hospital had done before, probably have the wound healed up in four days, and at the end of a week be able to sit up. He was operated on at ten in the morning and by six in the evening had a temperature of 101, which rose during the night to 102½ and in the morning was 103; the next day it remained between 103 and 102½, being kept from rising higher by the influence of antipyrin. Evident sepsis being present, the wound was opened to its full extent. It had united partially by primary union; no pus was found in the wound, but the margin of the muscle had a gangrenous appearance. No drainage-tube had been introduced into the wound, but what little drainage was necessary was provided for at the lower angle of the wound by two or three strands of Seabury & Johnson's catgut. After being opened the wound was washed out with 2½ per cent. solution of carbolic acid, and packed with iodoform gauze, which, moreover, had been rubbed in iodoform; still his temperature did not drop, and in another twenty-four hours the patient died from heart-failure.

Few cases of nerve-stretching have resulted fatally. The operation is usually considered a simple one, not at all dangerous, and it is important that the unsuccessful ones be reported so they can serve as a guide.

He took the catgut, which we thought could be the only source of infection, that had been used for drainage and attempted to make cultures. He tried peptone broth, gelatine, and agar-agar mediums, but in none of them was any growth obtained, showing that it was aseptic, at least that part which remained in the body.

There is much of an outcry now against catgut, and it is being done away with largely; Volckmann will not use it.

REGULAR MEETING, May 21, 1888.

Dr. B. M. Behrens read a paper en-

titled "Cutting on the Drumhead," which was interesting and suggestive in its matter. It was a plea for instrumental interference in the cases of middle-ear disease which do not yield to what the writer calls uninstrumental methods—inflation or catheterization included. He describes his own method as follows:

"Instead of giving the indications for a probing I shall explain to my professional brethren how I proceed after having treated a case with the common non-instrumental remedies without any benefit. After a thorough cleaning of the meatus I apply a 4 per cent. solution of cocaine, and then make a longitudinal cut with the lancet in the upper part of the drumhead, back of the malleus and beneath the ligamentum posterius, so that I can easily reach the hearing bones. With the probe I examine the mobility of the stapes, or if I am not satisfied with probing, I apply the hook. Usually this will give me an idea about it. If there are striated lines in the drumhead, that seems to indicate adhesion in the middle ear. I replace the hook with a common straight convex ear-knife and divide them. We find striated lines in the drumhead in different conditions of the ear, from the best hearing to complete deafness, without knowing their importance in every individual case, if we don't, divide them where we are in doubt. Has no benefit been derived from this proceeding, we can stop, or we can go further. In the first place I simply apply some iodoformed cotton-batting, and the cut heals up again in a couple of days without the least damage being done. In the second place I apply more cocaine, and with a little sulphuric acid on the probe I cauterize it. After a few days I then have got an opening large enough to allow me to inject the internal wall of the middle ear to make mobilization trials, and, in case I find it necessary, to cut the tensor tympanic or stapes muscle—in short, to increase my diagnostic and therapeutic apparatus to an extent that can only benefit the otologist and never harm the patient; that is, at any rate, my experience. As to the question, how long the mobilization trials are going to be made, I have found it of most benefit to employ very little force, and for only a couple of seconds. By applying iodoformed cotton-batting from day to day, this proceeding can be repeated often, and if the cut tends to closing a new application of sulphuric acid can be made to prevent it. For how many days it is to be continued, it is not easy to tell. I usually do it four to eight days, according to the severity of the symptoms on account of irritation, tenderness, and the opening of the drumhead; any control as to improvement of hearing or abatement of noises is not easy to make, so I simply apply the iodoformed cotton, and let the wound heal up again. First, eight to fourteen days after I can make any examination as to the benefit derived from my proceeding. The result will indicate whether the process is to be repeated or not."

After a discussion of the history of the procedure, and a description of the various ways in which it has been employed, the author continues: "At last an appeal to my colleagues. I don't expect that any otologist shall jump at this proceeding of mine and take it for granted that this is the way, that after Urbautschitsch may lead to a mighty elevation of the otiatric, but shall only ask them to give it an honest trial in all cases of affection of the middle ear that are not benefited by our usual non-instrumental remedies. As any new idea, it has to be worked up, and the satisfaction it has given me in the last year entitles me to lay it before the medical profession and claim for it the right of being given a trial, the more as it has never done any harm. If we can but save a few of our fellow-beings from utter deafness by a method different from the usual way of treating with Politzer or catheter, where these are insufficient, we shall have more regard for this branch of the medical science and feel proud of having achieved a little more than what every non-expert may happen to achieve.

As the treatment of catarrh of the middle ear stands to-day, the pessimism is explicable, and no wonder that the soft methods have so many adherents as they have. Of those cases that I have treated with my proceeding, some few are selected that, given in detail, will, it is to be hoped, encourage my professional brethren to adopt it. Of course it will often fail to be of any benefit, but I have also pretended only, that it has given me more satisfaction than any other proceeding."

The author reported four cases in explanation, and closed with the following remark: "My sincere hope is that these cases, especially the last one, will do away with the pessimism to some extent, and deprive the 'soft methods' of some of its adherents."

The discussion of the paper developed nothing not fully covered by the paper itself.

EXHIBITION OF SPECIMENS.

Dr. T. B. Swartz exhibited a uterus, removed per vaginam for carcinoma of the cervix, and a dermoid cyst of the left ovary. The first case was one of interest, for several reasons. The diagnosis was confirmed by competent microscopical examination. The recovery at that time, four weeks subsequent to the operation, seemed complete. The patient was thirty-eight years old, had borne three children. She entered St. Luke's Hospital on May 3, and on May 5 Professor Dudley performed vaginal hysterectomy. The uterus was pulled down by means of forceps, the posterior cul-de-sac was entered, the entire uterus girdled, and the right broad ligament secured by hæmostatic pressure forceps and severed. The uterus then was turned out of the vagina and the left broad ligament served the same way. The operation was completed in twelve minutes. The hæmorrhage was controlled by hæmostatic forceps. The peritoneum was brought together by means of small pressure forceps; no sutures and no ligatures were used. Some forceps were removed in twenty-four hours, others in forty-eight hours, and those clamping the broad ligaments were removed in seventy-two hours.

The dermoid cyst of the left ovary was also removed by Professor Dudley at St. Luke's Hospital. The history of the case presented no points of special interest.

Dr. Henry T. Byford exhibited the ovaries which he had removed that morning from a virgin, in a case of a dysmenorrhœa which had resisted all other means of cure. He referred to a similar case in which he removed the ovaries one year ago, in which the operation was followed by complete recovery from the dysmenorrhœa.

REGULAR MEETING, June 4, 1888.

Dr. Albert B. Strong presented a paper in which he reported "Six cases of Old Dislocation of the Head of the Humerus."

In the first case the violence of the attempts at reduction caused a laceration of the integument in the axilla, from which there was a copious but easily controlled hæmorrhage. The patient died from sepsis thirty-six hours after the operation, and the autopsy revealed a partial rupture of both axillary artery and vein.

The second and third cases presented nothing of special interest. The fourth case was that of a woman thirty-five years old, and the dislocation occurred six weeks prior to the operation. Just as the surgeons had concluded to abandon the case as irreducible, reduction occurred as the arm was despairingly lowered to the side. Recovery.

The remaining cases presented no points of special interest.

In the course of the discussion of the paper, Dr. Clark Gapen reviewed the medico-legal aspect of such cases, and strongly indorsed Dr. Strong's emphasis of the importance of taking notes of such cases at the time of their occurrence. The law requires, first, ordinary skill; second, ordinary care and diligence; third, best judg-

ment. Ordinary skill has been defined as that degree of knowledge and skill attained by the profession up to a reasonable time of the occurrence in question.

ABNORMAL FŒTUS.

Dr. J. H. Stowell presented a specimen of a child born at full term. The mother is a woman of 35 years of age, and the father 40; they have both been married previously; the father by his first marriage had seven children, all healthy and well-formed; the mother by her first marriage had five children, healthy and well-formed. "This child which I present to-night is the first fruit of the second marriage. The child is a male, born at full term, and has no lower limbs whatever; one arm is off at the elbow and has a thumb attached to side of the humerus; the other arm is full length, but with only three fingers, two of these joined together. The child was born alive but lived only a few hours. The parents were colored." They cannot account for this in any way. Nothing of special interest was elicited by the discussion.

The President reported two cases of vaginal hysterectomy. In the course of the report he said: "The first case is one of great interest. The patient was placed in the extreme lithotomy position, a vaginal retractor put in over the perineum and drawn down; large lock vulcellum forceps were placed on the cervix and the latter was drawn down as far as possible. Dividing the vagina from the cervix was an easy matter with the scissors, and then separating the tissues all around from the cervix with the finger nail was easily accomplished. Large snap-forceps were placed on the left broad ligament. I found I had not sufficiently freed the uterus from the rectum, and cut a little with the scissors, and did a thing I will never do again. I reduced the size of the right broad ligament sufficiently to be grasped with another forceps. The uterus was removed in eleven minutes, but I spent three quarters of an hour trying to arrest hæmorrhage. It seemed as though every shred of divided tissue was bleeding. After my first case of hysterectomy I had constructed a very large retractor, whose blade is five and a half inches long by two and a quarter inches wide, with a suitable handle placed at right angles. The retractor was introduced into the vagina, flat surface downwards, and the rectum's anterior wall was perfectly exposed, and the bleeding artery was quickly exposed and seized. I had cut it off in freeing the rectal attachment to the uterus with the scissors. Forceps were placed upon this vessel, which completed the arrest of the hæmorrhage. In addition to the two large lock forceps I had thirteen others in the wound, which were taken off in 24 hours. The larger ones were taken off in 48 hours. The patient had no bad symptoms, and left the hospital in three weeks and two days.

The second case was a woman 42 years of age, and had borne several children. The removal of the uterus was determined upon, because of a rapidly growing carcinoma. This organ was small in size, and when exposed and drawn down with the vulcellum forceps it was brought easily to the mouth of the vagina. The vaginal wall was separated and the uterus brought down and removed in eight minutes. Four forceps only were left in this case, the hæmorrhage being easily checked. The patient was taken out of the operating room, completely dressed and ready for bed in 32 minutes after the commencement of the operation. She has gotten along without a bad symptom. The forceps were taken off in 48 hours. There was no rise of temperature except in the afternoon, when the temperature would go up to about 100, and go back again in the morning, showing that that there was no blood-poisoning going on. There was one peculiarity in this case. The operation was done at 10.30 o'clock Sunday morning; orders were left to catheterize the patient every six hours. She was catheterized shortly after the opera-

tion, but no urine was drawn, and again at six o'clock, without result. Just before completing these operations it is my custom to inject a solution of milk and water into the bladder, for the purpose of detecting any rupture of the bladder, and it revealed that the bladder was not ruptured; I knew, also, that I had not included the ureters in the forceps, because I kept too far away from them. Therefore, I felt that it must be suppression of urine, the trouble being in the kidneys. I saw the patient that night between nine and ten o'clock, and the nurse said the only thing she complained of was pain in the back, referred to the renal region. Poultices were ordered, and the next morning at six she was catheterized and a drachm and a half of urine only was obtained. A hypodermic injection of a half grain of pilocarpine was then administered, and I catheterized her four and a half hours later and drew off fourteen ounces of urine. With the exception of that one apparent bad symptom, the patient has had an uninterrupted recovery.

Professor J. A. Robison reported the following cases:

ANNUALLY RECURRING URTICURIA OF SEVERAL MONTHS' DURATION.

Miss G., æt. 29, has always been in good health until June, 1886. Menses appeared at 16 years of age, always been regular. Bowels generally regular, appetite small but variable. Has always been well nourished.

In June, 1886, an eruption resembling urticuria appeared on the arms, limbs, and body. It commenced with intense burning and itching, worse at night, intensified by heat, and causing loss of sleep. As a rule, the eruption would appear in the afternoon and disappear about 4 a. m. The result of this was the patient only slept from 4 a. m. till 9 a. m. each day. The eruption recurred daily from June, 1886, until February, 1887, when it disappeared after a two weeks' course of treatment. She was free from all trouble until May 15, 1887, when it reappeared and lasted until December 10.

May 13, 1788, she again visited him with the eruption out in full battle array. It appeared the night before at 7 p. m. and disappeared at 5 a. m.

BROMIDE ERUPTION OCCURRING IN AN INFANT.

This was a clearly defined case, but possessed no special interest beyond the fact of its existence and the unquestionable character of the diagnosis.

CHICAGO PATHOLOGICAL SOCIETY.

Reported by W. WHITFORD, M. D.

Stated meeting, August 13; President I. N. Danforth, M. D., in the Chair.

The session opened with the report by Professor G. F. Lydston, of a case of "Diffuse Syphiloma of the Tongue (with exhibition of the patient), and Excision by Galvano-cautery."

The patient, a man of 29 years of age, contracted syphilis at the age of 18; a hard chancre, which inflamed and caused paraphimosis, which lasted about a month and left the mucous membrane of the penis in an irritable condition, with frequent appearance of fissures and ulcerations. Secondary symptoms appeared about four months after the primary sore, and a pronounced papulo-pustular eruption appeared and resulted in considerable scarring of the skin. After the secondary period became manifest the physician in charge of the patient put him upon mercury for about three months, when the patient went to the Hot Springs of Arkansas. He remained at the Springs three months. He used a large amount of mercury by inunction, and was badly salivated twice. He then returned home and remained two months, after which he again went to the Springs and remained for eleven weeks, during which time he took mercury internally quite freely. He again went

home and was apparently well for three months, when mucous patches and eruptions broke out, and sores appeared upon the penis. About five years after contracting syphilis the patient was under the care of a physician who also prescribed free mercurial inunction, and that treatment was continued for about six months. He improved for a time and then quit treatment, but again got worse and went back to the same physician, and for at least eighteen months again took mercury in considerable quantity. He then went to Mount Clemens, Michigan, and remained about fifteen months.

He consulted Professor Lydston in 1884 for the first time. He had then unequivocal cerebral syphilis, and tuberculous squamous syphilides in considerable number were scattered about the forehead, forearms, and thighs, with a few scattered squamæ upon the trunk. Scars of former pustular syphilides were visible upon the forehead, forearms, and legs; the tibæ and sternum were excessively tender, and considerable pain was experienced at night. Cephalalgia was a constant symptom and gave the patient intense suffering. Gummy ulceration, with several fissures, existed upon the penis just back of the corona. The tongue was rough, and coated with thick, dirty, yellowish gray fur, with marked dryness in the centre and posterior part of the organ. Several tubercular nodules were also observable, one in the centre of the tongue and the others near its base, those upon the right side being especially marked.

The treatment at this time was cod-liver oil and iron, these being ordered on account of the patient's marked debility. The mixed treatment and the iodide of potassium in saturated solution were given, the iodide being run rapidly up to a dose of 300 grains per diem, and maintained at that point for three weeks, the disease being very resisting to treatment until the end of that time. Local applications of the acid nitrate of mercury were made to the tongue from time to time, and with apparent benefit. As soon as the symptoms indicated that the disease was yielding to treatment the amount of iodide of potassium was diminished to about sixty grains a day, the tonics being meanwhile continued.

The case was pronounced cancerous by the attending physician and several others who saw it in consultation.

Upon examination, the tongue was found filling the mouth and pressing upon the teeth in such manner that it had become eroded and ulcerated. Salivation was profuse; a deep ulcer existed at the centre and back part of the organ; the enlargement seemed to be rather more marked upon the right side. The submaxillary glands were slightly enlarged. There were no other lesions present upon any part of the body. As he experienced great difficulty in masticating and swallowing, he was subsisting entirely upon fluid food, and never having been very robust he had become greatly emaciated.

The treatment instituted was chiefly tonic, in conjunction with an alterative mixture containing iodide of sodium and the chloride of gold; milk punches were allowed, and he was instructed to take as much sweet cream and milk as he could without creating digestive disturbance. Local applications were made of a compound of carbolic acid, iodine, and menthol in mild strength. There was apparent improvement at first, but the tongue began to enlarge and the case presented a more serious aspect.

Mild inunctions of mercury were tried, but they seemed to aggravate the case.

Punctate cauterization with the galvanocautery was tried with some reduction in the size of the tongue. Soon thereafter sloughing began and destroyed the greater portion of the right side of the organ, the remainder of it being undermined and eroded, and the floor of the mouth extensively invaded by the central ulceration, of which mention has already been made. He grew worse, regardless of whatever treatment was resorted to, and as there was no

prospect of saving any of the tongue, and with a view of getting the foul mass out of the way, excision of the organ, with the galvano-cautery wire, was performed.

If it should be questioned whether or not he was justified in excising the tongue if he believed it to be syphilitic, he stated that the remnant of the anterior half of the organ was attached by so narrow a pedicle from before backwards that, if healing had been possible, the tongue would have been practically useless. The base of the tongue was a mass of hyperplastic ulcerating tissue, and the degenerative process was apt to extend to the pharynx and larynx.

Dr. E. P. Murdock reported "A Case of Superfœtation," and stated that in the winter of 1887, he was consulted by Mrs. C——, aged 26 years, suffering with chronic endometritis, and with a history of a miscarriage some three months before she consulted him. She gradually improved under treatment until the spring of 1886, when he was called to see her for persistent vomiting due to pregnancy. She had a great dread of a miscarriage, and used every effort to avoid it; but in the month of July, 1886, the third month of gestation, the fœtus was suddenly expelled one night after a few severe pains. She made a good recovery, and again returned for treatment with a view of getting entire relief from her old trouble.

In February, 1887, she again presented symptoms of pregnancy, and about the first of March she called Dr. Rittenhouse to relieve her from pain and flooding, which he did very effectually, and assured her that the fœtus had not been expelled. About four weeks later Dr. Rittenhouse again saw her suffering with the same symptoms, and assured her that she was still pregnant, and that no miscarriage had occurred. Dr. Murdock saw her in May and was informed of the treatment she had had, but he could not agree in the prognosis that had previously been made in her case.

He found the uterus considerably enlarged and tender, but not soft and elastic, and not so large as it should be in the fourth month of pregnancy. He advised local treatment, but his advice was not followed, and he did not see her again until September. She was then expecting her confinement in December, and had all the symptoms of a fairly progressing pregnancy. He then gave it as his opinion that she had had a miscarriage in March or April, and that a succeeding pregnancy was in progress, and told her that her confinement would not occur before April 1.

Months passed on and labor did not occur, but it was difficult to understand how a miscarriage at the third month could take place and no fœtus or placenta be found. The month of April passed and still labor had not occurred. During these months Dr. Murdock saw her frequently, on account of severe pain in the uterus, diarrhœa, and occasional attacks of fever. May 2, 1888, thirteen months after the beginning of pregnancy, he was called to attend her in labor, which progressed and terminated normally until delivery of the placenta, which presented such abnormal characteristics that he examined it carefully and found imbedded in its margin a fœtus of about three months' development, and to it attached a placenta completely flattened and mummified, which explained the matter, and induced him to present the specimen with a report of the case to the society.

The history seems so clear, and the entire account of the symptoms and conditions so clearly remembered and stated by the patient as to leave little doubt of a condition which, he said, for want of another term he called *superfœtation*, although it is not such a condition as has been heretofore reported under that name, if such a condition as superfœtation ever exists.

The literature on the subject is quite limited, with the writers divided in opinion on the subject as to whether such a condition exists or not, those who deny the existence of superfœtation basing their ar-

guments upon scientific reasons based upon the changed condition of the organs, to-wit:

1. The changed physiological action of the organs.

2. The firm mucous plug which closes the mouth of the uterus.

3. The changed condition of the decidua preventing communication with the tubes—that is, the general suspension of the functions of conception which exists during the period of gestation, and often extending entirely through the period of lactation.

In the case reported the objections do not exist. First, gestation had undoubtedly ceased, though the fœtus remained in utero. The mucous plug had evidently been displaced by the occasional hæmorrhage, and in fact there are strong reasons to believe that all the processes of ovulation and menstruation had returned after the death of the fœtus.

Dr. Goodell, of Philadelphia, reports a case in which a dead fœtus remained in utero fifteen years, during which time menstruation was regular and profuse, and he finally removed the fœtus, or rather the fragments of bones, from the uterus, and his patient died of sepsis after the operation. This appears to have been a fœtus of seven or eight months' development, while in the case now reported it could not have been more than ten weeks.

Those who hold to the possibility of superfœtation depend entirely upon reported cases for proof. In many of these cases there might have been a double uterus, and the functions of each acting separately, as is undoubtedly the case in some of the lower animals, the rabbit, French coney, etc. Indeed, Prof. Fordyce Barker reports such a case in 1885 coming under his own observation. In this case one child was born nine months after marriage, and seventy-four days later another child was born; both lived and prospered. Eismann, Burdack, Des Granges, Fornier, Velpeau, E. A. Purdy, of New York, Dr. Amos Sawyer, of Hillsboro, Illinois, and a few others have reported cases of duplex gestation with a variance from 70 to 168 days in delivery. In one of these cases Blumenbach accounts for the phenomena on the theory of a double uterus, but a post-mortem upon the woman four years after the birth of the children, when death came from some other cause, the pelvic organs were found normal. With these facts before us we are almost compelled to admit the possibility of superfœtation in rare instances. But it is important to make a distinction between superfœtation and superfecundation—that is, superfœtation being the conception and gestation taking place in a uterus where a fœtus already exists, perhaps two or three, or even four or five months, while superfecundation is the impregnation of two ova within a few days and before any physiological changes could take place in the female organs of generation. Thus, the case reported by Howard, where a woman gave birth to a white child and a black one at the same confinement, could not be called superfœtation, but superfecundation; so with the case of Mr. Adam Vettle, of Nokomis, Illinois, who bred a mare to a stallion, and five days later to an ass, and she brought forth a horse colt and a mule.

Many cases of superfecundation have been reported, and there can be offered no physiological argument against them; but it is quite different in superfœtation. So far as he knew, the case which he had reported stands alone, as he was not aware of any other case of the kind on record. He regarded it as a case of considerable interest, though by no means so wonderful as the cases of two living children being born from the same uterus at an interval of 168 days.

Dr. L. L. Gregory read a paper on "Primary Cancer of the Kidney," reporting a case, and exhibited the diseased organ. After reviewing the literature on primary cancer of the kidney in a general way, he said: I shall now give the history of a case coming under my own ob-

servation a few weeks since in St. Luke's Hospital, and shall present to the society for inspection the tumor removed, a portion of the vena cava distended to six times its normal size, with an organized blood clot, the heart, and also the kidney of the opposite side.

The patient was of Swedish parentage, 27 years of age, unmarried, and a seamstress by occupation. The family history as regards disease is very good. The brothers and sisters are all healthy. The patient's health previous to this illness was uniformly good. Her entrance into womanhood was not marked by any trouble, and her menses have been regular and normal. She entered the hospital the 11th of April last, weak, emaciated, and of a sallow complexion. Last November she first noticed a small lump in her abdomen a little above and to the right of the umbilicus. At first there was no pain, but about Christmas she began to suffer pain at intervals in the region of the right kidney. The tumor, on examination when she entered the hospital, was oblong and nodular in shape and about 3¼ inches in its shortest diameter. One month from this time the tumor, which had steadily increased in size, was removed. It extended from a line 2½ inches to the left of the umbilicus to the right side of the abdominal wall, and from the ninth rib above to the line a little below the upper border of the pelvis. Posteriorly it occupied the whole of the lumbar region on the right side. On percussion it was dull, diminishing in flatness from the right to the left side. The tumor was slightly movable from the right to the left side. The margin between the growth and the liver was with difficulty made out, owing to the adhesions between them.

The week previous to the operation the urine was examined with the following result: Sp. gr. 1.018; alkaline in reaction; no albumen; no sugar; no blood. A few triple phosphatic crystals; mucus in large amount; squamous and round epithelial cells, and a few pus-cells.

The tumor was also aspirated and about two ounces of fluid drawn off, which was found to contain albumen, 25 per centum by volume; blood globules, large cylindrical casts composed of round nucleated cells; occasional large, round and polygonal cells, nucleated, isolated and in patches; broken-down connective-tissue shreds, and much granular matter; also groups or nests of large nucleated granular cells.

The patient gave a history of chronic constipation, but an attack of diarrhœa delayed the operation for more than two weeks. The liver, spleen, heart, and lungs were normal. The right kidney was somewhat hypertrophied. The stomach was pushed to the left side, and she was unable to take but little food at a time without distressing her. The last ten days before the operation she suffered constant pain in the tumor and darting pains in the lower extremities.

ALUMNÆ ASSOCIATION OF THE WOMAN'S MEDICAL COLLEGE OF THE NEW YORK INFIRMARY.

Meeting was held May 29, the President, Dr. Mary T. Bissell, in the Chair.

Dr. Gertrude B. Kelly presented the history of a case of "Acute Articular Rheumatism Complicating the Puerperal State."

The patient was a multipara; the case one of breech presentation. The membranes had been prematurely ruptured at 11 a. m. Dilatation had been completed, and the breech born at 8.45 p. m. Contractions had then ceased, and the head had been delivered by expression. The child was born alive, but did not cry for an hour, and died at the end of twenty-seven hours.

The uterus contracted well, but one hour after labor the pulse was 100, the patient felt chilly, and her face was flushed. On the morning of the second day the temperature was 100.8° Fahr. and the pulse 100. She complained of pain in the right

hypochondrium, and epigastric distress. In the evening, the temperature was 102.8° Fahr. and the pulse 104. The face was then of a bluish tint, almost apoplectiform in appearance. The pain and feeling of weight in the epigastrium continued, and a dose of calomel was given. There was no pelvic tenderness, and the flow was normal. On the morning of the third day the temperature was 100.8° Fahr. The tongue was dry and brown, and there was a markedly yellow tinge to the skin, but the patient felt better. On the morning of the fourth day the temperature was 101.4° Fahr., and the pulse eighty-eight. In the evening the temperature was 103° Fahr. and the pulse eighty-eight. Still there was no tenderness about the uterus, and the flow was normal. She now commenced to complain of pain in the pubic symphisis, and in the right elbow. On the morning of the fifth day the temperature was 101.4° Fahr., and there was swelling of the right wrist. The patient was ordered sodæ salicylate, grs. x, q. 2h., but only two doses were taken, because the patient thought that "it stopped the flow." In the evening, the temperature was 99.8° Fahr., perspiration was profuse, and there was not so much pain, but the patient was restless. Following the administration of one drachm of the tincture of hyoscyamus the patient was delirious. She had previously taken this dose with good effect. On the morning of the sixth day the patient was rational and was taking nourishment well. The temperature was 101.4° Fahr. There was now swelling of the left elbow and wrist, but the pain was less. After a fairly comfortable day the patient had, at 3.45, commenced to talk incoherently, and shortly after had died. Embolus was considered to have been the cause of death. No signs of heart implication had been previously discovered. An autopsy was not allowed.

Dr. ELIZABETH CUSHIER favored rather the diagnosis of obscure blood-poisoning in this case. She had seen cases terminate fatally without local pelvic symptoms, and in which on autopsy no pelvic lesions were discovered, with the exception of small collections of pus in the lymph reservoirs situated on the sides of the uterus beneath the broad ligaments. In one case which she had seen, there had been scarcely a trace of peritonitis, and the only changes besides lymphangitis referred to were softening of the liver and spleen, and the dark and semi-coagulable condition of the blood. There was absence of local pelvic symptoms, also, in some cases where the patient after having done apparently well for a few days would have a violent chill and high fever, lasting with more or less marked remissions for a number of days, then passing off and the patient making a rapid and complete recovery. In two such cases seen by the speaker, there was complete absence of local symptoms, and the diagnosis of sepsis could only be made by rigid exclusion. In one such case, the temperature had risen to 107° Fahr. and there was furious delirium. This temperature had been controlled by cold applications and there had been no further elevation.

The joint affection in the case presented by Dr. Kelly, if taken in connection with the delirium, would point to septic rather than rheumatic arthritis, as the cerebral symptoms of acute rheumatism are usually attended or preceded by excessive fever, while in septic poisoning, on the contrary, hyperpyrexia does not necessarily accompany such disturbances.

Dr. EMMA WARD EDWARDS thought that the implication of the joints was too early to be referred to puerperal infection. The joints had been affected upon the fourth day, while the fever had been immediate.

Dr. CUSHIER replied that the poison might have gained access before the child's birth, and in that way have gained time for its work.

Dr. SARAH E. POST suggested that pyosalpinx would furnish such a focus of infective material. Obstetricians were looking toward these tubal collections for the

origin of obscure cases of puerperal disease. In this case the head had been delivered by expression. If a tubal collection had existed it might at the same time have been erupted, and passing over the placental surface of the uterus before contraction have been taken directly into the blood. Immediate chill and rise of temperature, under such circumstances, would be thus easily explained. Puerperal infection usually proceeded by the lymphatics. Where the blood current was the channel for its introduction, an altered type of development and speedier systemic involvement would be inferred.

Dr. VIRGINIA DAVIS, resident physician at the New York Infant Asylum, referred to three cases of joint affection occurring during the puerperal period. In one case the attack had occurred three weeks after delivery, in another two and a half weeks, and in the other, four. The history had been irregular, and the attacks had not been promptly limited by anti-rheumatic treatment, yet the patients had been up and about previous to the attack; there had been no pain nor temperature nor any local pelvic symptoms. A diagnosis of septic infection had been made in all of these cases, but the question of rheumatism was, she thought, pertinent. In one of the cases, a previous history of rheumatism was obtained.

Dr. KELLY closed the discussion. She still held the opinion that the rise of temperature and the joint-affection occurred too early for puerperal pyæmia. In all of the cases which had been referred to, a longer interval had elapsed between the delivery and the development of these symptoms.

Dr. EMMA WARD EDWARDS followed with a paper upon "The Frequency of Backward Displacements of the Uterus after Parturition."

In her earlier practice, she had encouraged patients wearing pessaries for backward displacements to hope that after pregnancy they would be cured. She had, however, been disappointed, having found that in all cases the old malposition was renewed. In this statement she included both flexions and versions. In the reader's experience, all backward displacements of the uterus tended to return after delivery. The curability of the condition was, however, increased. If supported by tampons or a pessary during the first two or three months after delivery, a permanent cure would usually result. The theory of cure lay in a shortening of the ligaments by the processes of involution. Backward displacements in the virgin and in the sterile married woman were, on the other hand, practically incurable by pessaries. The future of Alexander's operation was therefore eagerly watched. It could not be denied that shortening of the round ligaments was the most important indication to be met in the treatment of these cases.

Dr. GRACE PECKHAM referred to a case in which birth at term had been preceded by five miscarriages, due probably to the malposition of the uterus. In this case the malposition had returned after delivery. The special cause for the displacement would, in any case, probably determine its recurrence.

Dr. POST referred to two cases in which posterior displacement had seemed to prevent conception, and pregnancy had occurred while wearing a pessary. In both of these cases the displacement had returned.

Dr. CUSHIER was sorry to say that she had had a large experience similar to that of which Dr. Edwards had complained. She knew of no case in which backward displacement, existing previous to pregnancy, had not returned. In regard to early treatment, she thought that while careful attention should be paid to the replacing of the uterus as soon after parturition as it was discovered, equal care should be taken that the involution of the vagina was not interfered with by large pessaries. The frequent lifting of the uterus, the Simm's position, or a well-adjusted Cutter's

pessary would, she thought, prove most efficient. Later, the intravaginal pessary could be resorted to.

The speaker did not think that backward displacements of the uterus were a frequent cause for sterility, for while she had corrected the displacement in many cases in which it had given rise to repeated abortions, she had yet to see a case of simple retroversion with sterility which was overcome by the replacement of the uterus.

In regard to shortening the round ligaments, her experience had been too limited to be of value. She had operated six times. In three cases the result had been satisfactory; in one, a subsequent operation upon the vagina was resorted to, as the shortening of the ligaments did not prevent the sinking of the uterus; in another the patient was obliged to continue the wearing of her pessary. In one case the operation was done subsequent to a Battey's operation. The round ligaments were found in this case so attenuated as not to bear traction, and relief was given by drawing the cervix backward and attaching its posterior lip to the posterior vaginal wall.

Even where pessaries were worn with comfort, Alexander's operation would be wecolmed as an escape from the doom of wearing them, as was in some cases necessary, for a lifetime.

Dr. SARAH J. MCNUTT made some remarks upon "The Frequency of Nephritis as a Complication of Intestinal Catarrh."

Where stupor or other head-symptoms developed in the course of intestinal catarrh, the urine should be carefully watched. Scanty urine would be often found loaded with albumen and casts.

Dr. GRACE PECKHAM presented a photograph showing the restoration of the parts in a case of the "Tumor of the Clitoris," upon which she had operated one year before.

THE BRITISH MEDICAL ASSOCIATION.

The British Medical Association assembled August 7 in the University Buildings in the city of Glasgow, Scotland.

The first day of the fifty-sixth annual meeting was chiefly devoted to meeting of councils, reading of reports of various committees, etc.

The chair was occupied by the retiring President, Dr. J. T. Banks.

In the evening, Professor W. T. Gairdner, President-elect, delivered the annual address on "The Physician as a Naturalist." He closed his address with one of those authoritative utterances respecting the relations of science and religion which in these days of confusion and spiritual trouble are listened to with much avidity and eager hopefulness. President Gairdner said: "Probably there may be some of you present who have been led to take note of a proverb which I am bound to say I have not been able to trace to its source, but which I suspect to have been the growth of a more mediæval period. '*Ubi tres medici, duo athei.*' Irreverence in a physician, he maintains, disqualifies him for some of his noblest functions. Indifference makes him an anomaly in our social system. It will be in the future his high privilege to play the part of a mediator between destructive and constructive influences of the times. Remembering the pernicious despotism exercised over his own art, he will study the Bible emancipated from fetters of tradition. His relations with suffering and the solemn ministration of life and death will keep him in a region 'in which from day to day the voices of the unseen world (if he will only listen) will be ever sounding close to his ears.' And so in the highest sense a spiritualist, working according to the strict method of the materialist, he may in the evolution of more certain and far-reaching

art, master the relations between our physcial and moral natures, and whilst healing fleshly ills acquire the skill to treat by medicine the many varieties of moral *disease* as systematically as he now treats physical ills."

Promptly at 10.30 a. m. on Wednesday, the various sections—twelve in number—met, remaining in session daily until 2 p. m. during the week.

Section A—Medicine.

Professor T. McCall Anderson, M. D., presided and delivered the opening address on "The Diagnosis and Treatment of Syphilitic Affections of the Nervous System." After quoting certain views regarding the affection, he said his view of syphilis was that, as "mild" syphilis was apt to be treated in a cavalier fashion and without due care and persistence, disease of the nervous system was apt to follow in its wake; and that such disease was much more common than was generally supposed. He then proceeded to deal with his subject under the following headings: The entrance of the syphilitic poison into the system; the discovery of other manifestations of the disease and traces of by-gone syphilitic manifestations; the feeling of pain and appearance of patient; the age and sex of the patient, as being important; the occupation of the patient; the fact that syphilitic nervous lesions are frequently multiple; the variability of the symptoms; the fundamental types recognized as cerebral in syphilis; eye-symptoms, and the general treatment.

A discussion followed.

Dr. Andrew Smart, of Edinburgh, opened the section of medicine on "Some Undescribed Forms of Respiratory Neurosis." The function of respiration undergoes remarkable changes when the nerves which regulate it become disordered from any cause, or when their normal activity is in any way interfered with. The first case referred to was that of spasm brought on by slight emotional disturbances. The spasm lasted fifty seconds, and in that space the patient breathed 132 times, while during the same interval the heart registered 212 pulsations. This case was only one of a group which Dr. Smart cited to illustrate the effects resulting from vaso-moter spasm of a particular seat of the brain. Referring next to a second class, it was explained that the vagus and phrenic nerves (the two chief nerves of breathing), from their combined control of the entire respiratory movements, were a prolific source of many and sometimes grave disorders, not only of breathing, but of the respiratory muscles, implicating sometimes all the other muscles in general convulsive spasm, and suspension of breathing for a time. This mode of disturbance he described as "Inspiratory Neurosis," inasmuch as when these nerves were so excited respiration was always stopped in the position of full inspiration. The third disorder he referred to was that of nerve expiration. Irritations of this nerve or its centre excited persistent cough, going on until spasm and threatened suffocation was imminent. This condition as a symptom was characteristic of a number of maladies, especially whooping-cough, which he said might be viewed as a disordered state of that nerve. A fourth respiratory neurosis was described under the designation of "Respiratory Dysphagia" connected with the functions of swallowing. It was explained that it had been definitely ascertained that there was a nerve whose function it was to stop breathing during the act of swallowing, and interference with that action caused difficulty of breathing during meals. The troubles were of different kinds, which were fully described according to the nature of the disorder of the nerve. He concluded by referring to "Cerebral" and Cheyne-Stokes breathing, the only two modes of abnormal respiration. He showed by means of respiratory tracings that the former were misconceived and wrongly interpreted as a sign of disease, and that it was generally confused with that of Cheyne-Stokes respiration. The

latter, he remarked, was characterized by rythmical periodicity, a difference of great significance absent in the other, which is continuous respiration. He considered the occurrence of Cheyne-Stokes breathing of the true periodic type as a sign of the greatest import. He furthermore believes that the stoppage of periodic character of the breathing is brought about by stimulation of a distinct centre of respiratory inhibition.

A large number of papers were read in this section.

SECTION B—SURGERY.

Professor George Buchanan, M. D., presided. In the course of the opening address he stated that he was the first person who ever adopted the practice of surgery to the exclusion of all the other branches of medicine. In this he was joined by Sir Joseph Lister and Sir G. H. B. Macleod; so that the practice of surgery was now adopted by others who had obtained hospital appointments—he thought to the advantage of the profession and the medical school. No one, he said, who had had so long experience as himself could fail to be struck with the rapid strides with which the science and practice of surgery had advanced. His early years were associated with administration of anæsthetics, for he was the first person in Scotland who was made insensible to pain by the administration of ether—an experiment he performed upon himself. In speaking of the tendency of surgery within the last thirty years, he said he thought that period more than any previous one had been characterized by scientific research and had profited by the investigations of pathological histology. It might seem a little late in the day to refer to antiseptic surgery as one of the advances of the present time, but it was not out of place to do so in this University, where the principle was first enunciated, nor at this meeting, where Sir Joseph Lister was to be present. It was while he held the chair of surgery here, from 1860 to 1869, that he made those observations by which the germ-theory of putrefaction was established and which culminated in the antiseptic treatment of wounds. The discovery in the later part of the period which perhaps had caused most interest was that of bacillus of tubercle, not only because it showed the germ-origin of a disease long believed to be constitutional, but because it betokened the probably similar origin of many allied affections, such as syphilis, cancer, etc. Of course a bacillus can only live in a suitable pabulum supplied by a peculiar constitution, so that it was to be considered only as an exciting cause acting in a predisposed part. In pathological histology the researches into local beginnings of cancer had greatly cleared the way for a more precise etiology than formerly; still it must be admitted that that dread disease still baffled the most skillful, both as to its origin and progress. Operations upon the head, chest and abdomen were now daily practiced which twenty years ago would have been deemed unjustifiable. Might he take the liberty of saying that in some of these the limit of prudence had been reached, if not exceeded? Especially in cases of malignant disease, where it could be recognized, the utmost caution was required in determining for or against the operation.

A number of papers of professional interest were read in this section.

One of the most important papers read at the meeting was that of Dr. William MacEwen, of Glasgow, "On Surgery of the Brain and Spinal Cord." As introductory to his lecture he briefly sketched the history of the evolution of cerebral surgery. Lesions of the head had at all times held a prominent place in the annals of surgery. Much had been done by surgeons before the present day to advance the healing art as applied to this particular region, but their efforts were chiefly directed to the superficial parts, and their operations were simple and undertaken for the most part upon the primitive evidence of direct visual and tactile observations. No references were made by them to cerebral surgery as now known. There were two

formidable barriers to the advance in this region; first, the fact that the majority of intra-cranial operations were attended by inflammatory action, which so often proved fatal as to cause the surgeon to shun active interference; and secondly, the brain was a dark continent in which they could descry neither path nor guide capable of leading them to a particular diseased area, and if they did attempt to reach it, it could only be by groping in the dark. The cerebrum was supposed to perform its functions as a whole in the same way as the liver and kidneys performed theirs, there being no differential of function. In recent years abundant proof had been gathered from human pathology to put beyond serious doubt the broad fact that there are points in the human cortex cerebri intimately related to the motor and sensory functions of certain parts of the body. The apportionment of definite parts and their precise delimitation was still the subject of investigation. For the purposes of the paper, it was enough to recognize that there were certain regions of the brain in intimate relation with the movements and sensations of certain parts of the body, and which in the presence of either irritative or destructive lesions gave rise to phenomena which were of the greatest diagnostic value. This extended physiological knowledge enabled cerebral lesions to be more accurately localized, whilst his experience showed by preserving aseptic the parts operated upon surgical interference with the brain could be robbed of its chief dangers. In tracing the progress of cerebral surgery, he cited a number of interesting cases which had come under his own observation, chiefly of tumor and abscess of the brain. Dealing next with the present aspect of cerebral surgery, he inquired if the localising motor phenomena were reliable guides to diagnosis of cerebral lesions situated in the motor cortex. His answer was an unhesitating affirmative. Each case, however, required to be studied on its own merits; the whole phenomena presented; the unobstrusive as well as the prominent features must be carefully searched for; the degree in which each was present must be accurately measured; and the whole weighed and compared with former experience before drawing a conclusion. From his own experience as well as cases reported by Mr. Godlee, Mr. Horsley, and many others, it was also clear that the motor and sensory phenomena formed reliable guides to the localization of lesions in cerebral convolutions. He adduced a number of instances, one of special interest, showing that the diagnosis of cerebral lesions in non-motor regions might be made from sensory phenomena; and also as an example of the difficulty of finding the exact cue to the lesion, and how easily it might be overlooked. He said a man who had received an injury about a year previously suffered from deep melancholy, strong homicidal impulses, relieved by paroxysms of pain in the head of indefinite seat. Though the pain was excruciating, he welcomed it, as it temporarily dispelled the almost irresistible desire to kill his wife and children and other people. Prior to receiving this injury he was perfectly free from impulses of this kind, and had led a happy life with his family. Behind the angular process of the frontal there was a slight osseous depression, which could not account for his symptoms. There were no motor phenomena, but on minute inquiry it was discovered that immediately after the accident, and for almost two weeks subsequently, he suffered from psychical blindness. Physically he could see, but what he saw conveyed no impression to his mind. These phenomena, however, gave the key to the hidden lesion in his brain. On operation, the angular gyrus was exposed, and it was found that a portion of the internal table of the skull had been detached from the outer, and had exercised pressure on the posterior portion of the supramarginal convolution, while a corner of it had pene-

trated and lay embedded in the arterior portion of the angular gyrus. The bone was removed from the brain, and re-implanted in the proper position, after which he became greatly relieved in his mental state. Though still excitable, he had made no further allusions to his homicidal tendencies, which previously were obtrusive, and he was now at work. Such cases of complete mind-blindness were rare, and the definite localization in this case would assist in indicating in a man what the arterior portion of the angular gyrus, and the posterior portion of the supramarginal convolution, subserve. In cerebral surgery not only did one require to localize the lesion, to select suitable cases, but also, after exposing the brain and its lesions, to judge when to advance and when to hold the hand. After dealing with such topics as the possibility of the removal of large pieces of the motor area, anchoring of the brain, false hernia cerebri, and re-implantation of bone to fill the hiatus in the skull left by injury or made by operation, he turned to another portion of the nervous system. It was found that certain sensory and motor phenomena, due to lesions in the spinal cord, were amenable to operations, and were attended by a measure of success sufficient to offer a prospect of relief to a distressing class of sufferers hitherto regarded as hopeless. The spinal membranes and the cord itself could be exposed, and neoplasms and encroachments upon the lumen of the canal might be removed therefrom without unduly hazarding life. Such interference was unsparingly condemned by writers on the subject, their remarks, however, being applied to injuries, as no such operation had been hitherto contemplated upon idiopathic cases. They contended that they were full of danger, being difficult, prolonged, and attended with profuse hæmorrhage; secondly, that the operation could hardly benefit the patient; and thirdly, that no one had been able to present a successful case. Each of these points had now lost its validity. He gave instances of successful operations on the spine, and, in in conclusion said, that the same phenomena by which they were now able to recognize certain cerebral lesions, and locate them in precise areas, were exhibited by patients who came under the eye of their surgical predecessors, some of whom must have the album of memory filled with such impressions. Yet they saw not their import. They were so hampered by circulated physiological dogma of the time that their true significance never dawned upon them. The facts were reflected from their brains as images from a mirror, and no more.

STATISTICAL RÉSUMÉ.

Of twenty-one cerebral cases, exclusive of fractures of the skull or other immediate effect of injury, operated upon by Dr. Macewen, there had been three deaths and eighteen recoveries. Of those who died, all were *in extremis* when operated on. Of the eighteen who recovered, sixteen are still alive in good health and most are at work, leaving two who have since died—one eight years after operation of Bright's disease, but having in the interval been quite well and able to work; the other forty-seven days after the operation, after the abscess was perfectly healed, from an acute attack of tubercular enteritis.

SECTION C—OBSTETRIC MEDICINE.

Thomas More Madden presided, and read a valuable address, "The Rise and Progress in Obstetric Medicine." A number of papers were read in this section, among which might be mentioned one "On Intrauterine Death; Its Pathology and Preventive Treatment." An active discussion ensued on all papers read in this section; communications bristling with technicalities were made by nearly all members present.

SECTION D—PUBLIC MEDICINE.

Henry Duncan Littlejohn, M. D., President. He discussed "Sanitary Legisla-

tion" by reading a somewhat lengthy paper of great importance and interest.

SECTION E—PSYCHOLOGY.

James C. Howden, M. D., presided. In his opening address he first treated of the lesions derived from the few cases of insanity in which surgical interference had resulted in recovery, and then proceeded to discuss the mental and medical treatment of insanity.

SECTION F—ANATOMY AND PHYSIOLOGY.

John Cleland, M. D., presided and delivered an interesting address which was followed by general discussion.

SECTION G—PATHOLOGY.

Sir William Aitken, M. D., presided. He read a valuable paper on "The Progress of Pathology." In closing, he remarked that clinical specificity in disease had been shown to be only partially true. Professor Cruikshank read a paper on "(1) Anthrax in swine; (2) Tuberculosis in swine; (3) Human and Bovine Tuberculosis."

SECTION H—OPHTHALMOLOGY.

Thomas Reid, M. D., presided, and Dr. R. Brudenell Carter opened a special discussion on the "Treatment of Senile Cataract." The following gentlemen took part in the discussion: Messrs. Power, Carter, McHardy, Teale, Lloyd-Owen, Hewetson, Grossman, Bell, Snell, Wolfe, and others. It was concurred in by all members present, that all operations should be done under full antisepsis. Extraction of cataract with iridectomy, or a preliminary iridectomy, was insisted upon by a large number of members, whilst the extraction of cataract without iridectomy appeared to have many advocates. Mr. Powers suggested that if nature designed other than a round pupil for visual purposes she would have made it otherwise; he thought the pupil left by an iridectomy (key-hole shape) was contrary to nature for visual purposes. That the artificial pupil was in his mind no doubt the cause of a large number of astigmatic cases met with after iridectomy. A wide iridectomy should be made, permitting easy escape of the lens and lens débris and less risk of bruising the iris by pressure of lens in its escape through an opening made by incision. Graefe's knife with Graefe's modified linear incision was accepted as the least dangerous operation. The following are some of the papers read in this section: "A Contribution to the Study of Hemianopsia of Central Origin, with Special Reference to Acquired Color Blindness"; "On General Neuroses. Having an Ophthalmic Origin"; "On (1) Sailors and their Eyesight; (2) Unusual Corneal Opacity in Process of Recovery"; "On Color-Blindness"; "On the Value of Cautery in Treatment of Ulcerations of Cornea"; "Three Cases of Conical Cornea treated by Actual Cautery"; "On Cocaine," etc. Mr. R. Brudenal Carter described his operation for "Opening the Sheath of the Optic Nerve for Relief of Pressure," and exhibited a case of instruments specially devised for his operation, which is as follows: Tenotomy of the recti and a hook introduced through the opening so as to embrace the optic nerve. The eyeball is rotated so as to expose the optic nerve; an incision is made in sheath of the nerve, evacuating the fluid; a small probe-pointed bistoury is passed into the opening and the sheath of the optic nerve is slit up along its entire length; the divided rectus muscle is brought in apposition as well as the conjunctival wound by silk sutures. Antiseptic precaution is observed. The eye is then bandaged and the patient is to remain quiet for a week. He says this operation is harmless, and that the relief from pain experienced by relieving tension can not be overestimated.

SECTION I—OTOLOGY.

Thomas Barr, M. D., presiding. The principal discussion in this section was that on "Adenoid Growths in the Naso-pharynx; their Influence on the Middle Ear and

their Treatment." These growths it was thought best to remove by the finger-nail and also using an artificial finger-nail when required. Hartman's curette and forceps were sometimes required in the removal of these growths. Anæsthetics in removal of growths from naso-pharyngeal or buccal walls of pharynx or in any surgical interference where hæmorrhage was likely to ensue, should not be used, though in some cases, especially in children, it was considered impossible to operate without them. Two cases of death were reported from hæmorrhage into trachea in removing these growths, the patients in both instances being under the influence of chloroform. For relief of pain reliance should be placed upon the free use of a 4 to 10 per centum solution of cocaine.

SECTION J—DISEASES OF CHILDREN.

Walter Butler Cheadle, M. D., presided. He said he did not advocate the establishment of children's diseases as a distinct specialty. This section was amongst the most prominent and was largely attended. Professor A. Jacobi, of New York, started a discussion on diphtheria and was followed by Professor Gairdner, Professor Buchanan, and many others. Professor F. E. Waxham, of Chicago, explained the proper method of intubation of the larynx. Members from many of the sections came specially to hear, and probably for the first time heard a description of the proper intubation of the larnyx, etc.

SECTION K—PHARMACOLOGY AND THERAPEUTICS.

James Morton, M. D., presided. There was discussion on carbolic acid, antipyrin, antifebrin, and their allies, especially as regards their antipyretic, analgesic, and antiseptic actions. Papers were read on Phenacetin, coca, alkaloids, etc.

SECTION L—LARYNGOLOGY AND RHINOLOGY.

Felix Semon, M. D., presided. A discussion on "The Causes, Effects, and Treatment of Nasal Stenosis" was opened by Dr. McIntyre, of Glasgow. Papers were read on "The Pathology of Echondrosis of the Triangular Cartilage with a New Operation"; Removal of Nasal Polypi"; "Hay Fever," etc.

REPORT OF SCIENTIFIC GRANTS COMMITTEE.

The following are reports made to the committee:

Dr. C. E. Beevor and Mr. Victor Horsley have been carrying on investigations of an experimental character in stimulating the cortex and the internal capsule, as well as investigations on the brachial plexus of the monkey. These observations are not furnished for publication, as further work on the subject is required. They have also finished an investigation on some of the functions of certain cranial nerves (v, vii, ix, x, xi, xii), and of the first three cervical nerves in the monkey, which has been read before the Royal Society. The chief points in this paper are that the soft palate does not receive its motor supply from the seventh nerve, but from the accessory nerve of the vagus; the hypoglossal nerve supplies only one-half of the tongue, and it does not supply the depressors of the hyoid bone, through the descending noni branch. The depressors of the hyoid bone are supplied by the first and second cervical nerves, of which the branch from the first cervical to the hypoglossal supplies, especially the sterno-hyoid, and sterno-thyroid, while the omo-hyoid gets its nerve supply especially from the branch from the second cervical nerve to the descendens noni. The nerves were stimulated by the Faradic current in the cranial and spinal cavities, and also in the neck.

Dr. Hadden and Mr. Ballance, by their stimulating experiments, have led to conclusions of a positive and negative kind. They have found that stimulation of the prefrontal region, as well as the temporo-sphenoidal and occipital lobes, has not been followed by movements. They are in-

clined to think, also, that the ascending parietal convolution and the angular gyrus do not invariably possess the functions ascribed to them. As points of interest attention may be called to the localization of movements of the thumb and great toe. Occasionally they have found bilateral movements of a definite character follow stimulation of certain spots in one hemisphere—broadly put, the movements of the fingers, wrist, elbow, and shoulder as represented in the cortex of the ascending convolution in the order indicated, beginning from below. Certain definite movements have been observed in stimulation of the various parts of the internal capsule.

Dr. Angel Money's object has been to find out whether experimental irritation of the cerebral hemispheres has any power of causing movements in the plain muscular tissue of the stomach and intestines. The voluntary muscles were paralyzed by means of curare, thereby preventing muscular contraction on the application of the electrical currents to the surface of the cerebral hemispheres. The movements of the stomach and intestine were watched through a small window in the peritoneum. Artificial respiration was employed in the usual way. In some experiments the intestines were kept bathed in warm bath of neutral saline solution. The animals used were rabbits, dogs, and cats. In none of these animals did experimental electrical irritation of any part of the surface of the cerebral hemisphere cause movements of the stomach or intestines. When the cortex of the brain was removed by slicing, and electrical irritation practiced on the divided white matter, no result followed in the stomach or intestines unless a strong current was used. A movement of the stomach and intestines was invariably excited when the electrodes were applied to the basal region of the brain. This movement could be arrested by electrical irritation of the dorsal region of the spinal cord. It has been asserted by Vulpian that experimental irritation of the surface of the brain in the motor area can cause an epilepsy, so to speak, of the plain muscular tissue of the stomach and intestines. Dr. Money admits the difficulties of the inquiry, and has been unable to confirm this view. He believes that Vulpian's result may be attributed to diffusion of the current into the pneumogastic region.

Wm. B. Meany, M. D.

Glasgow, Aug. 11, 1888.

EXTRACTS AND ABSTRACTS.

ILLINOIS STATE BOARD OF HEALTH.

AN ABSTRACT OF PROCEEDINGS AT THE QUARTERLY MEETING IN CHICAGO, JUNE 28–29, 1888.

The minutes of the last regular meeting, April, 1888, were read and approved.

The reading of the Secretary's quarterly report was deferred until the following day.

In the matter of certain applications for certificates under the Medical Practice Act, the time was extended for parties to make reply to charges filed against them.

Representatives of two medical colleges, against which charges had been filed, appeared before the Board and submitted arguments to show that their institutions should be considered in "good standing" by the Board. In both cases the matter was taken under advisement. Consideration of cases under the Medical Practice Act occupied the attention of the Board during the remainder of the first day's session.

Pursuant to adjournment, the Board resumed its session at 10 o'clock a. m. June 29.

Under the regular order of business the Secretary presented his quarterly report, in which he said: Although there have been nine importations of small-pox into the State during the year, and the disease is prevalent in many surrounding localities, and especially among the negroes along the Mississippi and Ohio Rivers, there has been

no spread of the contagion in Illinois, and the outbreaks thus far have been promptly suppressed with only one exception. The two cases in Bond County, at Greenville and at Reno—existing at the date of the last report in April—caused no others in the neighborhood, and up to the latter part of May the State was free from the disease. In May three cases were reported at Metropolis, in Massac County, and in June one at Kaskaskia.

In the early part of the quarter there were localized outbreaks of scarlet fever at Nokomis, Earlville, Nashville, Biggsville, Foreston, and Kinderhook; of German measles at Plainfield and Kinderhook; of diphtheria at Earlville, and of typhoid fever at Mt. Pulaski and Springfield. This latter occurrence will be made the subject of a detailed report to the Board at a later date, when the investigations now being made—and including chemical and biological examinations of the water supply—shall have been completed. The outbreak occurred among the students of Concordia College, some of whom had nursed a little negro waif sick with the disease. It resulted in forty-five cases and nine deaths. The session was interrupted, the classes broken up, and the institution will not be again opened until the premises are put in good sanitary condition.

GENERAL SANITARY WORK.

Aside from the foregoing, the general health of the State has been very satisfactory. A good amount of sanitary work has been accomplished, a number of cities and towns having completed their re-inspections, and others having begun this work for the first time. Galesburg, Cairo, and Sparta are to be especially commended for the thoroughness of their work in this connection.

The circular of the Board addressed to railway managers in April last has met with a very gratifying reception. Many roads have entirely reformed the sanitary conditions with respect to the accommodations for passengers at stations; vaults have been emptied, disinfected, and the contents disposed of so as to avoid future nuisance; and arrangements are now secured for keeping these appurtenances in a cleanly and comfortable condition. Much attention has also been given to the purity of the drinking water furnished at the stations and on the trains.

Work on the investigation of the water supplies of the State has been impeded to some extent by the high stage of water in many of the streams, and lately by the excessive rainfall over large areas. Considerable progress, however, has been made. Time-tables for the collection of water supplies at various points—twenty-three in number—between Chicago and Alton have been constructed, so as to make it practicable to follow the changes, by pollution and purification, in a given body of water from the time it leaves Lake Michigan until it flows past the city of Alton. Reports of the chemical and biological examinations are received in the Secretary's office.

Except with the interruptions noted, samples of water are now collected and examined once a week at Chicago (lake water), Bridgeport, Lockport, Joliet (above and below city), Morris, La Salle, Henry, Peoria, Pekin, Copperas Creek Dam, Havana, Beardstown, Pearl, and Grafton, on the main stream; and from the Kankakee, Du Page, Fox, Big Vermilion and Little Vermilion, Sangamon and Spoon tributaries. Samples will also be taken from Alton and East St. Louis (Mississippi river water), and from other points as found necessary in the course of the work, which will continue six months or more.

In each sample the following determinations are made: Total solids, suspended matter, nitrates and nitrites, chlorine, hardness, free ammonia, albuminoid ammonia, oxygen consumption, and color and odor. By continuing the work through so long a period, and by making the analyses as fully as outlined, it is hoped that the effect of accidental variations will be practically

eliminated. The amount of flow from some of the tributaries is pretty well known, and before the end of the summer it will be known for all, so that we will then be in possession of data complete enough to enable us to give a fair answer to the question, What is the rate of oxidation in the Illinois river in a flow of four hundred miles, with sources and amount of contamination, and amount of dilution from tributaries, practically known.

The results obtained thus far in this investigation show the importance of a study of the tributaries. The waters of some of these appear to contain a great deal of decaying vegetable matter. The character of these waters will be thoroughly studied, as an understanding of them is of the highest importance to the sanitary welfare of the communities supplied from such sources. The public water supplies of some of the cities and towns are also being investigated.

The investigation of the underground water supplies is making satisfactory progress—records from some sixty different localities, in all parts of the State, having been already secured.

CONFERENCE OF STATE BOARDS OF HEALTH.

In conformity with the instructions of the Board, the Secretary attended the session of the National Conference of State Boards of Health in Cincinnati, May 4 last. The proceedings of this meeting have been published, and it is only necessary in this connection to refer to so much as is of especial interest to Illinois. A committee was established to visit or correspond with the State, Provincial and other authorities having charge of the sea-board quarantines against dangerous infectious diseases, for the purpose of learning the methods in use, and the amount of co-operation such authorities can and will give for the protection of the people of this continent against said diseases. The committee is also authorized to act for the conference for this purpose, and is instructed to report the results of its investigation to the conference and to the State Boards of Health, and to arrange for proper co-operation should any foreign epidemic disease threaten to invade or actually get a foothold on this continent.

The members of this committee are: Dr. J. H. Rauch, Illinois, chairman; Dr. H. B. Baker, Michigan; Dr. C. N. Hewitt, Minnesota; Dr. J. N. McCormack, Kentucky; Dr. T. G. Simons, South Carolina; Dr. James Simpson, California; Dr. John D. Jones, Ohio; Dr. P. H. Bryce, Province of Ontario, Canada, and Dr. Benjamine Lee, of Pennsylvania. Sub-committees were subsequently appointed to visit personally, where necessary, all the quarantine stations on the Atlantic and Pacific coasts, from the St. Lawrence to the Rio Grande, and from Oregon to Lower California; these sub-committees to secure the co-operation of the States should cholera or any other epidemic disease obtain a foothold.

The chairman of the general committee is a member *ex officio* of each of these sub-committees, and was requested by the members to formulate instructions as to the lines on which the investigations of the various quarantine establishments should be conducted. This has already been done, and in order to cover the ground more completely Drs. F. A. Gerrish, of Portland, Maine; C. A. Lindsley, of New Haven, Connecticut; H. S. Orme, of Los Angeles, California, and J. N. Evans, of South Carolina, have been added to the committee.

NATIONAL QUARANTINE.

Regulations approved by the President of the United States, and promulgated by the Secretary of State to United States consular officers, have been re-published for the information of United States quarantine, State and municipal health officers. These are based upon Section 2 of the Act of 1878, which provides that whenever any infectious or contagious disease shall appear in any foreign port or country, and whenever any vessel shall leave any infected foreign port, or, having on board goods or passengers coming from any place or district infected with cholera

or yellow fever, shall leave any foreign port bound for any port in the United States, the consular officer or other representative of the United States at or nearest such foreign port shall immediately give information thereof through the Department of State, and shall report the name, the date of departure, and the port of destination in the United States; the object being to secure timely advice of the outbreaks of cholera and yellow fever, and of the probable transportation of the poisons of these preventable diseases in vessels bound for this country.

The Marine Hospital Service, through the Treasury Department, has also secured instructions to the Revenue Marine Service to co-operate in the prevention of the introduction of any foreign pestilence as far as practicable.

The maritime quarantine service is better administered at this time than ever before.

Thus far, although Asiatic cholera still exists in South America, there has been no intimation of its reappearance in any of the districts of Europe which were infected last year, nor of its development in any of the countries which were then threatened.*

CONFERENCE OF LOCAL HEALTH AUTHORITIES.

The conference of health authorities of cities, towns and villages of the State, for the purpose of promoting the work of local sanitation, which was authorized at the April quarterly meeting, was held at the State capitol on May 17–18.

Professor O. C. De Wolf made an address upon the "Disposal of Garbage"; Mr. Genung upon the "Plumbing and Drainage of Houses"; Professors Long and Curtis upon "Water-Supply Pollution"; Dr. Buckley read a paper on the "Disposal of Nightsoil"; and Dr. Cohen upon the "Methods of Prevention and Suppression of Epidemics of the Contagious and Infectious Diseases."

The Secretary reported on the "Registration of Vital Statistics," and the attempts of the State Board to secure better legislation on the subject. It was shown that too much is asked of the physician under the present system.

The necessity for a uniform health organization for cities and towns throughout the State led to the adoption of the following resolution:

"Whereas, Uniformity in the organization of the various boards of health of this State, together with having their powers and duties clearly defined by law, with the full and clearly defined means of enforcing the order of said boards, is a matter of such importance as to demand the attention of our law-makers; therefore be it

"*Resolved*, That a committee of five be appointed to prepare a bill for an act to create boards of health in the several cities and villages of the State, defining their powers and duties and fixing their compensation, and cause the same to be presented to the next General Assembly of this State, and urge its passage either as an amendment to the present act for the incorporation of cities and villages, or as an independent law."

MEDICAL EDUCATION AND STATISTICS.

In justification of the general acceptance, both in this country and abroad, of the conclusions in the reports of the Illinois State Board of Health on the subject of Medical Education in the United States and Canada—and with especial reference to the accuracy of the statistics contained in those reports—the following passages in the address of the President of the American Medical Association, delivered at the Thirty-ninth Annual Meeting, on the 8th of May last, are noted.

"That the professions of law and medicine are overcrowded in this country, no man of common observation will deny. The ratio of professional men in the

*Since the date of the meeting, two deaths from cholera are reported at Messina, Italy.

United States to the population exceeds that of any other country in the civilized world, so that any legitimate means of checking this evil which can be devised and carried into practical effect must be hailed by the medical world, as well as the general public, as an inestimable boon. The statistics recently published by the Illinois State Board of Health tending to show the annual number of graduates in medicine within the last three years, and the conclusions based upon those statistics by the medical journals of the country, I have reason to believe, are not entirely accurate. In support of this opinion and the views expressed in the foregoing part of this address, I shall take the liberty of directing your attention to a résumé of statistics bearing upon this subject furnished me through the kindness and courtesy of Hon. N. H. R. Dawson, United States Commissioner of Education.

"These will, no doubt, exhibit in a more forcible and impressive manner to your minds the special subject under consideration than any individual argument, however logical or conclusive, that could be presented, particularly when it is remembered that they are prepared under the immediate authority and direction of the United States Government, having at its command far greater resources than any one State or county could employ."

So far as it is possible to discover in the extract from the "Résumé of statistics"—for it is obviously only an extract which is furnished in the address—so far as appears from this extract the figures of the Commissioner of Education relate to a single year, and not to "the annual number of graduates in medicine within the last three years."

This appears to be the college year 1885–86, during which the Commissioner found "89 regular, 10 eclectic, 13 homœopathic, and 2 physio-medical schools" in existence—in the sense of holding sessions and graduating students.

The Board's report, however, includes all colleges in existence in 1885–86, while the Commissioner's figures are intended to include only those which had classes of graduates.

Each succeeding year's catalogues and announcements are carefully examined; where the names of matriculates are published these are compared name by name, and all duplicates are deducted from the total. It may be explained that the desire to show a large attendance, and also to reduce the apparent proportion of graduates to matriculates, leads a certain class of schools to this duplication of names.

The "Forty-fourth Annual Catalogue and Announcement" of one such school, in which there are 46 duplicates in a claimed total of 216 matriculates in attendance upon the sessions of 1886-87, was received by the Board. The number of graduates was 63, and the claimed proportion of graduates to matriculates is 29 per cent. It should be 37 per cent. The year before there were 56 duplicates detected out of 217 names; total graduates 58; claimed proportion 26.7 per cent.; actual proportion 36 per cent. This year the names of matriculates are not published; but, as in all similar cases, the college will be requested not only to furnish the names in writing for the information of the Board, and to enable it to determine the recognition of its diplomas, but the affidavit will be exacted which the Board now requires of all schools concerning which there is a question as to good faith in conforming to the standard of minimum requirements, or of enforcing their own published regulations, or of furnishing the instruction and facilities advertised.

It must be obvious that statistics compiled, and data accumulated and treated in the manner herein indicated,* have a measure of value and accuracy not attainable by any agency restricted to the purely vol-

* Before the publication of each issue of the report advance-sheets, "proofs," or copies of the immediately preceding report are sent to the proper officers of every institution concerned, with a request for examination, for the correction of any inaccuracies, and for the addition of any new matter pertinent to the subject.

untary information contributed from interested sources and over which the agency may exercise no control. The importance of the recognition of a medical college as in "good standing" in Illinois, under the Medical Practice Act of the State, is felt throughout the entire country, as there is not a medical college that does not desire the recognition of its diplomas by this Board. It is this which has made it practicable to issue a series of reports on medical education and medical institutions, the trustworthiness and utility of which have not only never heretofore been questioned, but which have been widely recognized both in this country and abroad as exercising a marked influence in raising the standard of medical instruction and of the qualifications necessary for the practice of medicine, and thereby improving the status of the medical profession, with consequent benefit to the public welfare.

MEDICAL PRACTICE ACT.

During the quarter fines of $100 each have been imposed upon five unqualified men who violated the law. Other suits are pending. It is now one year since the new law went into effect, and nearly all who were required to take out certificates have done so. The effect of this law, especially with regard to itinerant showmen and mountebanks who sold medicines, has been marked and gratifying. The Board refused to grant licenses to this class, believing their business to be prejudicial to the interests of the people, and in so doing refused $11,400 in license fees. During the month of June, 1887, there were twenty-two itinerant companies in the State whose sales daily amounted to about $2,000. It is safe to assume that this law has saved the people of the State not less than $250,000 during the past year.

In the matter of the recognition of the diplomas of a medical college, taken under advisement at Thursday's session, consideration thereof was resumed, and on motion it was decided not to issue certificates to three graduates of said school whose applications were pending, for the reason that the school had not in their cases complied with its own printed requirements or the requirements of this Board with respect to preliminary education.

SANITARY CONVENTION AT ALBION, MICHIGAN.

WATER SUPPLY.

Professor VICTOR C. VAUGHAN, M. D., of Ann Arbor, Michigan, in an address, said: I suppose, if we were supplied with pure air, unadulterated food, and uncontaminated water, there would still be room for doctors and undertakers, but disease would be greatly decreased, suffering lessened, and life prolonged. It is a law applicable to all creatures, that when compelled to live upon their own excreta they sicken and die. This is true of the most minute organism. It is true of man.

The most prominent of English historians has said: "The only real knowledge is that which can be converted into practical power. It is the only knowledge that has life and growth in it. All else dries up like the rain drop off the stones, or hangs like dust about the brain." Let us make this discussion as practical as possible.

There are three different sources from which we can draw our drinking water—cistern water, surface water, and subterranean water. The purity of cistern water will depend on the atmosphere through which it falls, the roofs upon which it falls, and the cistern in which it is collected. It is more likely to be contaminated by the atmosphere in manufacturing districts than in Michigan. Great attention should be given to the roofs where leaves, branches of trees, and the excrement of birds are likely to accumulate. The only way to keep the cistern itself free from contamination is to build it so well that no water from the surrounding soil will be allowed to enter it. To do this the excavation should be one or two

feet larger than the cistern. Several cases of typhoid fever have been known to come from the use of cistern water. In one case a cistern was used which was surrounded by numerous privy vaults. The cistern leaked, and if water can leak out it can leak in. What effect would it have to filter the cistern water? This depends upon circumstances. The ordinary filter is a delusion and a snare. Charcoal filters do not free organic matters. Organic matter collects in the filter and it becomes a hot-bed of disease.

The purity or impurity of surface water will depend on the atmosphere through which the water falls and the soil through which it flows. A few years ago I visited a city in this State to study the water supply. It was gathered from the hills, which are studded with stables, pig-pens, and all kinds of impurities. It was washed down into the ravine and then into a pond from which the supply was obtained. Typhoid fever prevailed in this locality to a great extent. Surface water may be very pure. This is true where it falls on a surface unpolluted, and where the volume of water is large. The great volume causes a dilution. Most large cities use surface water, and this has all degrees of purity and impurity. Detroit has a fairly pure supply from the lake. Some cities have suffered greatly. This is true of Philadelphia. During the Centennial Exposition the contents of the cesspools passed into the river, then down a short distance into the water supply, and there was a great prevalence of typhoid fever. Some suppose that flowing water will purify itself. There may be a grain of truth in this, but germs have been known to be carried a long distance and still continue poisonous. The citizens of Trenton and Wyandotte have been complaining of the contamination of their water supply by the city of Detroit. Garbage has been carried down the river, and Trenton and Wyandotte have suffered greatly from typhoid fever. It is probable that a large stream of sewage may be carried a long distance without being distributed, because of its different temperature and different specific gravity. This is illustrated by the Missouri and the Mississippi. The Missouri is muddy and still remains muddy after running into the Mississippi. This principle is also illustrated by the Gulf Stream, which retains its warm temperature and does not become admixed with the water of the ocean. So the probability is that if one city pours its sewage into the river, the city below will drink this sewage.

The purity of subterranean water depends on the purity of the soil through which it percolates. The popular idea is that percolating water purifies itself. This has been demonstrated to be a sad mistake. This is especially true of the sandy soil in this State. The distance organic matter will pass through a soil and still maintain its virulent properties is remarkable. (Dr. Vaughan here referred to experiments made in Richland, Kalamazoo County, showing that lithium sown over a proposed cemetery passed to a well thirty rods distant. He also stated how the germs of typhoid fever had been caried through a mile of porous soil in Lausanne, Switzerland.) Subterranean water will never be pure unless it passes through a pure soil. You can't have pure water as long as you have privy vaults and cesspools, and if there are any disease-germs in your soil they will find their way into your well.

It is known that cholera is spread by bad water. Where do we find the home of cholera? In India. Why do they have it in India, and why so constantly? Every few years the people of India hold festivals. They make pilgrimages a thousand miles on foot. The festivals occur in the hot months, just before the rains. They only eat meat that has been blessed, and after being blessed not a bit of it is thrown away. They are crowded in huts. They travel in small bands. They use the banks of rivers when obliged to obey the calls of nature. Disease and death make great havoc among them, and their corpses are buried in hills scooped in the sand. Cholera invariably

breaks out, and the streams become contaminated with the cholera germs.

We shudder at the ravages of cholera, but let us come nearer home. Typhoid fever slays its hundreds where cholera slays its tens. Every death from typhoid fever is unnecessary. If the soil were not contaminated none would occur. Yet there are 1,000 deaths from this disease in Michigan each year; and for every one who dies ten persons are sick, and not a case is justifiable. Typhoid fever comes to those in the prime of life. Each patient is sick on the average about four weeks, and there are ten thousand sick during the year. This means not only a great loss of wages, but a nurse is required for each person sick, so that twenty thousand people give up their entire time to this disease four weeks out of each year. You may keep your premises clean, but only a little fence separates you from your neighbor, and he may be careless. If that neighbor should knock you on the head in a dark night he would be sent to prison, but he may contaminate your well, and rob you of your life and your family, and you do nothing. The time will come when it will be a criminal offense for any man, through carelessness, to give his neighbor a communicable disease.

During the past fall typhoid fever prevailed very extensively at Iron Mountain in this State. One of the physicians at Iron Mountain said that the people there were drinking the foulest water he ever knew people to drink. A sample of this water was sent me. After putting it in beef tea and keeping in an oven eight or ten days, the residue was injected in a cat's back, and the temperature rose in twelve hours from 99 to 104 degrees. This could not have been due to the cat's mind; it must have been due to the germ.

Some time ago a convention was held by the State Board in one of your neighboring cities, where the wells as a rule were only ten feet deep. The ground was honeycombed with cesspools. We earnestly pleaded with those in attendance at the convention that they would boil the water which they used. Yet in less than a month several who listened to the speeches were dead from typhoid fever. Do not regard what is said here as only talk. You are in danger of having typhoid fever so long as you have wells and privy vaults. Until a system of sewerage is introduced you should substitute for the privy vault the dry-earth closet. Next find a good water supply. I would advise you to employ some good civil engineer, pay him, and have him investigate the different sources of supply. Then decide where the water shall come from. Then get bids from different water companies. In Ann Arbor we paid a civil engineer two hundred and fifty dollars, and we now pay only forty-five dollars a hydrant.

SCHOOL HYGIENE.

On this subject H. W. BRADLEY, of Albion, Michigan, said: The character of the citizens of the future will be determined, to a great extent, by the character and success of the schools of to-day. The success of the schools depends upon the physical as well as the mental and moral training of the pupils. The belief is quite general that the children of American families are physically declining, and "too much education" is frequently given as the principal reason for this degeneracy. This subject is one of vital importance, and should be discussed by school officers, that they may properly construct and arrange school buildings; by tax-payers, that they may realize full value for money expended for school purposes; by teachers, that they may care for the health of pupils; by physicians, that they may enlighten others less favored with opportunities for scientific research; by fathers, that they may make all necessary provisions; and by mothers, that they may perform their sacred duties acceptably. It is from a mother's standpoint that I look at this subject, and, though not expecting to instruct the members of this convention, I do hope to receive enlightenment from others.

Ventilation.—The selection of good sites for school buildings, and arrangements for proper ventilating, heating, and lighting them, are prominent features of this subject. The external beauty of the structures should be of small moment compared to these. One pleases the eye; the other affects the whole system. The subject of ventilation may receive all due attention in city schools, superintended, as they are, by educated men, and controlled by intelligent boards; but many school-houses in rural districts are very deficient in this particular. It is impossible for children to continue in perfect health any great length of time when they are compelled to endure several hours' confinement daily, in a room of unwholesome conditions. The air in our school-rooms (and homes also) should be able to stand the severest tests modern science can bring to bear upon them. The water should be above suspicion. The grounds and out-buildings ought to bear constant testimony to the doctrine that "Cleanliness is next to Godliness."

High Buildings.—The signs of the times seem to indicate a reform in the old custom of erecting school buildings many stories high, and then holding the more advanced classes in the higher rooms. The long train of ills following this practice is known only too well to the victims, mothers, and physicians. Welcome the reform, and may it reach every village in our State! The suggestion has been made by patrons that, in our smaller towns, ward school-houses be extended so that more grades may receive instruction there. This, of course, would exempt many of the younger children from the long, tedious walks necessitated by attending central schools.

Recess or no Recess.—I hesitate to criticise anything that receives the hearty support of some of the best teachers throughout our State, but the plea that comes from the mothers induces me to mention the subject. Mothers claim that individual recesses are extremely distasteful to timid children, and that they fail to avail themselves of the opportunities offered; that they often return from the school-room (after confinement during an entire session) with throbbing temples and feverish brow—nature's protest against the system. Some people think that we should go back to the old-fashioned plan of short, separate recesses. Others think that all should have a recess of at least ten minutes duration, where boys and girls and teachers may all go out of doors together and inhale the pure air of heaven, while windows and doors are thrown open in their absence. One writer says: "They would return from such a recess with blood made fresh and red, eyes and nerves rested, hunger appeased by a light lunch if desired, and nature's wants relieved; all would return to rooms cleansed of their foul exhalations by the flood of air pouring through them."

Teachers.—"The school teachers of to-day are the guardians of America's safety." And yet many of these teachers are young people, who have been rushed through a course of study and received the regulation diploma and certificate. They are often lacking in the maturity of mind and judgment necessary for the duties they assume—training children for future citizenship. Sometimes teachers are employed whose bodies are diseased and brains "muddled" by the use of narcotics. If it is our duty to examine the air in the school-rooms, it is a far *more imperative* duty that we understand the nature of the *moral atmosphere* of our teachers. Michigan now wisely decrees that every teacher shall know something about the science of health, and be prepared to teach the same. It is our privilege, as parents and patrons, to insist upon their making practical use of this knowledge. The better they understand sanitary science, and the more thoroughly they teach it, the better it is for the children. In order that we may *know* something about *how well* these matters are attended to in our schools, we would advise frequent visits to the school-rooms. The

mind can not reach any great degree of successful development within a body composed of distorted bones, diseased nerves, compressed lungs, and bad blood.

Food and Dress.—Food and dress are important factors in the health of school children, and belong to the mother's kingdom. Teachers may suggest, physicians advise, fathers protest, but the mothers usually control. A wide field for reformation is here open for the labors of intelligent, Christian women. The requirements of health should never give place to the demands of fashion. The chest should have a good chance to expand, and the blood an opportunity to circulate as freely through the veins of our girls as of our boys. In winter we should procure for them mittens and overshoes, warm cloaks and hoods, thick shoes with low heels, and their forms should be enveloped with flannel. Rich and poor people alike should give their growing children substantial unadulterated food, with few, if any, dainties; supply them with milk, if possible, bread (graham is best), and ripe fruits in their season.

"Early to bed and early to rise" is as good a sentiment to teach the children of to-day as it was fifty years ago. We ought never to allow them to be long idle or unoccupied, and should expect them to perform tasks requiring manual labor. Let us teach the little ones the value of pure thoughts, and the danger of evil ones, which, fostered, lead to pernicious, ruinous habits. We can not hope that our children will not come in contact with evil, especially as in daily passing to and from school they meet with evil in one of its worst forms —intemperance—and alluring rooms are placed all along our public thoroughfares. That they may meet evil bravely and rise above it grandly is what we work and pray for.

After sowing all this good seed, and doing all of these very sensible things, may we not trust that their development will result in healthy, vigorous bodies, wherein the brains may live and grow. I know of nothing better to give our children than the glorious combination of industrious habits, healthy bodies, strong minds, and good morals.

Discipline.—Many of our schools are models of excellence in regard to discipline, and it would be idle to contend that discipline is unnecessary. The accumulation of useful, practical knowledge should be the aim of all school efforts, and this ultimate result ought never to be sacrificed for mere forms and ceremonies. Any discipline that might prove injurious to the health of pupils, is questionable. We would be sustained in censuring a teacher who would compel children to form out of doors, with wraps removed, for the purpose of entering the school-room in good order, unless the weather was perfectly warm and pleasant. Neither would it be unreasonable in cold weather to expect the teacher to superintend the matter of adjusting wraps for the very small children before they leave the school-house. You may say this is not the teacher's business, but it must be done if they endure the long walks, especially in the country, without suffering. If the teacher does not make it her business, who will?

Overwork.—The extensive course of study and consequent amount of mental work is often held responsible for all the ills that befall the children. This is as unjust as the cramming system is dangerous. If the brain, while in process of development, be overcrowded, there will be a corresponding weakening of the whole system. But our children can stand a goodly amount of hard study and deep thought if the laws of health are strictly observed in all details. Our country needs vigorous thinkers, but she will never find them among the children whose brains have been crowded with facts at the expense of the body. The gay-colored bird gives a lively effect to the jaunty hat on the head of a pretty girl, if we can banish the thought that for her adornment the

little songster's heart was forever stilled, its musical voice forever hushed. Likewise a young Miss, bearing a diploma as the insignia of her successful pursuance of a course of study, is an interesting sight if her eye is bright, her step elastic, and complexion fresh; but if the honors have been secured at the sacrifice of health the spectacle is deplorable. Do not attribute failures in health to hard study alone. Remember the walks in the moonlight, the improper clothing and food, the hanging on gates, and lingering on piazzas, and then say whether the parents are not as responsible as the teachers. Many object to the competitive system as applied to our youths, and think it has produced a ruinous effect upon their mental as well as physical constitution. Allusion is seldom made to one great danger of this system. Scholars, in their desire to maintain class standing, are often compelled to work beyond their strength, and slight illness often results. Instead of removing the mental strain, and using a few hygienic precautions, physicians are sometimes summoned who prescribe stimulating medicines and quieting powders. You all know the result of the continuance of such a course—confirmed habits of daily doses of the dangerous drugs, until the body is wrecked and soul destroyed; and the victims are not the ones to be blamed. How carefully should the mother guard her children! How conscientiously should the physician who understands the danger, protect these young people, who do not. It would be better economy to pension the small army of physicians sent out from the medical colleges yearly than to support them by paying for professional services for our children, whose health may be *preserved* by giving attention to hygienic rules.

Physiology and Hygiene.—The legislature of our State has shown a deep interest in the citizens of the future, by making a law that "Instruction shall be given in physiology and hygiene, with special reference to the nature of alcohol and narcotics, and their effect upon the human system" in every department of every school, where public money is used in its support. "The district board shall require each teacher in the public schools, before placing the school register in the hands of the director, to certify therein whether or not instruction has been given in the school or grade presided over by such teacher." "And the director shall file with the township clerk a certified copy of such certificate." Any school board neglecting or refusing to comply with these provisions shall be subject to fine or forfeiture.

Any teacher of observation will sustain me in the assertion that boys who commence to use alcohol and tobacco will neglect their lessons and soon lose their ambition. Some men—habitual users of these poisons—have risen to eminent positions in life, but their success may not be a tithe of what it might have been had they been wise enough to have entirely relinquished the use of them.

It is a matter of surprise to teachers to find how readily pupils will learn and comprehend this study when it is properly explained. The wonderful network of telegraph lines called nerves which traverse the whole system, the miraculous organ which at every throb sends the life-giving blood into the most minute parts of the body, the great busy brain at work within the cranium, the intricate machinery of the digestive apparatus, the manner in which air penetrates the cells of the lungs, and then the deadly effects of alcohol and tobacco on all of these living tissues, are as well understood by children from five to ten years of age, as by men and women of middle life. A superintendent of schools in Massachusetts says: "This study ought to be taught. If the list of studies is already great, take something else out and make room for this, for it is entitled to the right of way."

Frances Willard says: "The life of a drinker of alcoholics has but two periods; in the first of which he could leave off if he

would; in the last he would leave off if he could. How shall the young and thoughtless avoid this supreme peril of their youth, unless they know about it, and how shall they know unless they be taught, and how can instructors teach unless they have the proper authority?"

In the discussion of the subject, Professor V. C. VAUGHAN, M. D., said: The public schools are doing grand work and I do not believe that the course of study is too long. But I do believe that the hygienic conditions of the school-room are neglected; that children breathe bad air, and hence get headache. Brain-work in itself is not likely to hurt any one, provided the air is pure and fresh; but who can study when he is tired or diseased? The remedy is to make every teacher give some attention to sanitary science. The board of examiners should examine every teacher in hygiene, so that teachers would know about ventilation, etc. My observation has been that the school boards try to have everything right. Money is not spared to get the very best. Nearly every man has his own theory about ventilation, but the school board should employ some competent man who knows how to ventilate and heat. Children are often injured at home as well as at school. Children study at home, and by one defective lamp. It is said the schools ruin the scholars' eyes, but I believe that more damage is done by study at home. It is common to say that schools should not be built on hills, or more than two stories high—that climbing is bad. I hold that if it is properly done—if the scholar walks erect and bends only the knees in walking—it is good exercise.

THE PREVENTION OF THE COMMUNICABLE DISEASES, FROM THE STANDPOINT OF THE STATE BOARD OF HEALTH.

HENRY B. BAKER, M. D., Secretary of the Michigan State Board of Health, in speaking of its work during the past fourteen years said: the board evidently believes that the "Prevention of the Communicable Diseases" is one of the most important measures which can engage its attention, and that work for this purpose is the most important that local boards of health can undertake. It is not difficult to imagine why this is true, because, by studying the vital statistics, it is found that the diseases which cause the greater proportion of the premature deaths in Michigan are the communicable diseases. Named in the order of their importance, the five diseases which cause most deaths in Michigan are: (1) consumption, (2) diphtheria, (3) pneumonia, (4) typhoid fever, and (5) scarlet fever. Excepting perhaps pneumonia, these are all communicable diseases; in common parlance, they are "catching"; not all of them are contagious, but all are in some manner spread from person to person. It thus appears not only that the communicable diseases have caused a large proportion of the premature deaths, but a large proportion of *all* the deaths, and that if we should prevent these communicable diseases we would change the character of our vital statistics—a much larger proportion of our people would die in ripe old age, a much larger proportion of the living inhabitants would be in the vigor of youth, and in the productive and enjoyable period of middle age; there would be prevented in each year in this State of Michigan, two or three thousand deaths of children from diphtheria and scarlet fever, and perhaps a thousand deaths of persons in the prime of life, from typhoid fever. Knowledge of these facts should prompt to greater efforts for the prevention of these diseases, and inasmuch as we now know how to prevent them, it seems strange that people do not uniformly act for their prevention. Probably the people would so act if they all knew that so large a proportion of the mortality is caused by these diseases, that they *are* preventable, and especially if all knew just *how* to prevent each one of these diseases.

These sanitary conventions do much to

spread such information; but they do not reach the people of the whole State fast enough, and the local boards of health, engaged as they are in the active work of restricting diseases which should have been prevented, and in other practical sanitary work, need the aid supplied by the different lines of work carried on by the State Board of Health, in order to spread that information which is essential to induce the people generally to sustain and co-operate with the local health authorities in restricting and preventing these diseases.

Some of the Work of the State Board of Health.—By means of reports from local health officers, physicians, and others, and in all practicable ways, the State Board collects information on these subjects; and in all practicable ways it seeks to spread this information where it will do the most good. It tries to have the information which it collects, and the best advice which it can give, placed before people at such times that it will be most likely to be accepted. Pamphlets, such as are distributed in this audience, containing concise statements of facts and directions how to restrict each one of these communicable diseases, are sent to localities where the diseases occur, to be distributed to the neighbors of the families in which the communicable disease occurs, because at such times of danger the neighbors will be most likely to read such pamphlets, and because after reading them they will then be most likely to co-operate with the local health officer for the restriction of the disease. Thousands of pamphlets on each of the most dangerous communicable diseases are distributed by the State Board. They are being distributed all the time. In order to distribute each kind of pamphlets in the localities where there are persons sick with the particular communicable disease of which that kind of pamphlet treats, it is necessary to know the localities in which each such disease occurs; and this information to the office of the State Board is provided for by a law which requires every health officer in the State to keep the secretary of the State Board of Health constantly informed on this subject. There are in Michigan over 1,400 local boards of health—each one required by law to have a health officer. The law requires every householder and every physician who knows of a case of one of these dangerous diseases under his care to promptly notify the health officer or other officer of the local board of health. When these laws are faithfully obeyed, the local health officer can take prompt action for the restriction of the dangerous disease, the secretary of the State Board of Health can promptly supply pamphlets of instructions which the health officer can distribute to the neighbors, and frequently the central office can take other action which tends to aid the local officer in restricting the outbreak and preventing an epidemic; and what is of even greater consequence, in so educating the people of that vicinity that thereafter they will be more ready to restrict that disease, and many of them be able to prevent outbreaks which otherwise would occur. Although this method of teaching the prevention of each of these diseases, while the disease is threatening, seems to be the best that is practicable for the State Board of Health, it seems too bad that it is not possible for the people of a locality to learn before a first outbreak occurs; but something like experience or personal observation seems to be essential in order to awaken sufficient interest in the subject.

But while it is probably impossible to reach the adult population with facts and advice on these subjects faster than in some such way as it is being done by the methods just described, it certainly seems possible, so far as concerns the rising generation, to strike at the root of *this* ignorance which annually causes the death of thousands among us. This leads me to say that, in my opinion, *the Prevention of the Dangerous Communicable Diseases should be taught in the public schools.*

As that knowledge which tends *directly*

to the preservation of life is of more worth than that knowledge which tends indirectly thereto, the teaching of physiology and hygiene in the public schools as it is usually done may well be displaced by the teaching of the exact measures required for the prevention of those dangerous communicable diseases which cause the greater part of the deaths. Of course, if the teaching of physiology and hygiene as it is usually taught is of more consequence than some other studies, the displacement should be of such other studies; but the thought I wish to convey is that whatever is displaced it is of prime importance for the welfare of humanity that the exact principles of the prevention of those diseases which cause the most deaths should be taught in the public schools. It is as true now as when the Bible was written that "My people are destroyed for lack of knowledge."*

When the present methods of teaching "physiology and hygiene" were invented, *sanitary science* had not been evolved; but now we know approximately what diseases kill us, and we know how to prevent the most important of them. Is it not high time this knowledge were being utilized by the teachers throughout this country for the saving of the lives of those whom they are educating?

Here let me answer the question which some of you are wishing to ask—How do we know that we have that valuable knowledge directly useful for the saving of life? The answer is: Because whenever we act upon that knowledge the saving of life follows, and it follows so uniformly that we have come to believe that it is a result of such action. A few illustrations on a large scale are as follows: Computations, made and published a year or two since† show that since the State Board of Health was established, and the approved methods for the restriction and prevention of small-pox have been attempted. the deaths from small-pox in Michigan, returned to the office of the Secretary of State, have been much less than during the five years just before the board was established. Compared with that period, and making allowance for the increase of population, about 1,000 persons appear to have been saved from death from small-pox in Michigan during the eleven years, 1873–84. Similar computations indicate that about three thousand persons were saved from death from scarlet fever in Michigan during the same period of time.

Coming down to a more recent period of time, official reports from the health offices in Michigan, for the year 1886, have been compiled, under my direction, by Mr. George E. Willitts, whom many of you know as at one time a student at the college in this city. Among the pamphlets distributed in this audience you may see two diagrams which exhibit graphically some important facts worked out by Mr. Willitts in the office of the State Board of Health. From the diagram relating to scarlet fever, you may see that while in those outbreaks in which isolation or disinfection was neglected there was an average of nearly fourteen cases to one outbreak; in those outbreaks in which both these approved measures were enforced there was an average of less than three cases to an outbreak. Therefore, there were eleven cases to an outbreak saved by the more perfect methods, namely, by isolation and disinfection. That is, in the fifty-eight outbreaks in which the more perfect methods were enforced there was, compared with those of less perfect methods, a saving of 638 cases of sickness and forty-eight lives from this one disease in a single year. Probably the saving of life and health through efforts at the restriction and prevention of scarlet fever in Michigan in that year were many times what these figures show; but these figures supply a scientific basis for the comparison of two methods of action. The facts are obtained from the official reports of the health

*Hosea, Chap. III, 6.

†Proceedings Michigan State Board of Health, pp. 11–16; Annual Report Michigan State Board of Health, 1886, pp. 177–181.

officers in whose jurisdictions the outbreaks occurred, and they are reliable so far as relates to all outbreaks properly reported

The other diagram before you, relating to diphtheria in Michigan in 1886, shows even a greater saving of life and health through efforts for the restriction and prevention of that disease, there being an average of over sixteen cases to an outbreak in those outbreaks in which isolation or disinfection was neglected, while there were less than three cases to an outbreak in those outbreaks where both isolation and disinfection were enforced—a saving of over thirteen cases and over two deaths to each of the 116 outbreaks in which the more perfect methods were employed, compared with those outbreaks in which one important part of the work was omitted. This indicates that in the 116 outbreaks alone there were saved 298 lives and over 1,500 cases of sickness from diphtheria in Michigan in a single year by improved methods for its restriction and prevention.

These computations from official reports are submitted, not as indicating the total saving of life and health from diphtheria and scarlet fever in that year by such efforts as are recommended by the State Board of Health, but as supplying positive evidence that these diseases *can* be restricted and in great part prevented whenever the people and their officers coöperate promptly and fully in obeying the laws, and in carrying out the advice which is freely given by the State Board of Health.

If you ask what is that advice which the State Board of Health gives—what, in its opinion, are the best known measures for the restriction and prevention of each of the dangerous communicable diseases—I must say that the time at our disposal this evening will hardly permit of my stating the advice in full; but it may be said that the methods are not the same for all diseases. Thus, the most important preventive of small-pox is vaccination; and small-pox, diphtheria, and scarlet fever are *contagious* diseases, and demand isolation of the sick and disinfection of the entire contents of the house, or at least of the room in which the disease has been; while *typhoid fever* is probably *not contagious*, but demands the disinfection of all bowel discharges, and especial care for the protection of the purity of the drinking water. The spread of *consumption* may *probably* be lessened by a general attention to the disinfection of all the sputa of consumptives.

But for full, though concise statements, I must refer you to the several pamphlets which are published by the State Board of Health for gratuitous distribution.

THE FORMATION AND EXCRETION OF URIC ACID, CONSIDERED WITH REFERENCE TO GOUT AND ALLIED DISEASES.

BY A. HAIG, M.A. AND M. D., OXON., M.R.C.P.,
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Some researches on the excretion of uric acid, on which I have been engaged for several years, now seem likely to throw new light on the part played by this substance in the causation of disease.

The diseases to which my results more especially apply are gout, a certain form of headache (migraine) (*Med. Chi. Trans.*, vol. lxx), some cases of epilepsy (*Neurologisches Centralblatt*, March 1, 1888), and lastly, rheumatism, acute and chronic, though the evidence of uric acid causation is not equally strong in all.

My researches show (1) that the excretion of uric acid (*Journal of Physiology*, vol. viii, Nos. 3 and 4) can be controlled by drugs and foods in a way and to an extent not previously known; that, whatever the amount excreted to-day, it may, within certain limits, be made either greater or less to-morrow.

2. That when uric acid excretion is diminished relatively to the urea, the diminution is due to retention in the liver and spleen, and possibly in some other

organs and tissues, of part of the uric acid which was formed; and, conversely, when uric acid excretion is increased relatively to the urea, such increase is due to a washing out of a store previously accumulated in the above organs and tissues.

3. That the formation of uric acid bears an almost constant relation to that of urea, though its excretion can be varied by food and drugs to a considerable extent.

4. That uric acid is probably never in excess in the blood except when alkalies or other solvents wash it out in considerable quantities from the stores which have gradually accumulated in the above-mentioned organs.

5. That excess of uric acid in the blood, brought about in this manner, is a sufficient cause of many of the symptoms of the diseases I have mentioned, and probably of others also.

6. That drugs and foods which diminish the solubility of uric acid diminish its excretion and lead to retention and accumulation; and, conversely, foods and drugs which increase its solubility facilitate its excretion and prevent retention.

7. That drugs which diminish the solubility and excretion of uric acid are harmful in the diseases connected with it, while drugs which increase its solubility and excretion are useful in these same diseases.

I began my research by investigating a form of migraine, or, as I now prefer to call it, uric acid headache, from which I had been a sufferer all my life; and my first observation of importance was that leaving off butcher meat (*Practitioner*, Aug., 1884, and March, 1886) produced gradually-increasing immunity from attacks. This and the clinical relationship of the headache to gout led to my examining the urine and finding a very marked rise in uric acid excretion, corresponding to the headache (*Med.-Chir. Trans.*, vol. lxx).

I then began to speculate as to the cause of this uric acid fluctuation; and, having noticed the apparently great gout-producing power of ales, and their strong acid reaction, I was led to test the effects of acids, alkalies, and, finally, of many other drugs, on the excretion of uric acid, obtaining results some of which form the subject of this paper.

The processes used in my experiments are as follows: for urea, the hypobromate test, with the apparatus of Dupré, variations of temperature and pressure being allowed for; for uric acid, Professor Haycraft's process (see *Journal*, vol. ii, 1885, p. 1100); and for acidity, a solution of phenol-phthaleine with a graduated solution of soda.

I soon found that acids (*Journal of Physiology*, vol. viii, Nos. 3 and 4) always diminished the excretion of uric acid, and alkalies always increased it; and it thus became easy to see that butcher meat, beer, wine, etc., had made my headaches more frequent, because they caused a rise of acidity, prevented the free elimination of uric acid, and accumulated a store of it in the body, which on a future occasion would produce a headache. Alkalies, or a somewhat vegetarian diet, on the other hand, by facilitating the regular excretion of uric acid, would prevent any such troubles; and in proof of this, I found that by first accumulating uric acid with acids, and then washing it out into the blood with an alkali, I was able to produce the headache in question.

Sir A. Garrod (*Journal*, vol. i, 1883, p. 653 [Lumelian Lectures]) has discussed the gout-producing powers of wines and beers, and puts it down entirely to the unfermented matters they contain. In discussing the matter he says the light wines which contain a considerable quantity of acid vegetable salts do least harm, while the heavy wines, as those of Spain, do most harm and are almost devoid of vegetable salts.

Speaking of acidity, he says that fresh fruits diminish acidity, through conversion of their vegetable salts into carbonates, and this I think gives us the key to the whole matter.

Both the above kinds of wines are strongly acid, but in the light wines the acidity is due to vegetable salts which are converted in the body into carbonates and act as alkalies, so that they cause no retention of uric acid, and have, as observed, but little gout-producing power. The heavier wines, on the other hand, have an acidity due to more fixed acids; they act as a dose of acid does, and have great gout-producing power; and the same applies to ales and stout, which are, as I have shown (*Med.-Chir. Trans.*, vol. lxx, p. 12 of paper), strongly acid and cause great retention of uric acid; so that the acidity of these beverages explains their action in gout-production far better than their unfermented matters, the action of which is not very clear; and in gouty patients who indulge in these beverages after an interval of care, the rise in acidity they occasion and the increase of arthritic pains can be watched.

Foods, again, influence acidity by the salts they contain (see Sir W. Roberts, *Urinary and Renal Diseases*, ed. iv, p. 56), fruits and vegetables, as we have seen, diminishing acidity, and animal foods containing large amounts of phosphates, sulphates, and chlorides increasing acidity. Some foods may also contain salts having a special solvent action on uric acid; for example, phosphate of soda.

Sir A. Garrod in the above-quoted lectures gives a very interesting table from Lehmann of the effects of different diets on the excretion of uric acid: thus

	Urea.	Uric Acid.
Mixed diet	32.4	1.1
Animal diet	53.1	1.4
Vegetable diet	22.4	1.0
Non-nitrogenous diet	15.4	0.7

and he draws the inference from it that uric acid is not so much influenced by the nature of the food as urea is; but if the uric acid excretion is regarded relatively to the urea this conclusion will, I think, have to be altered; and I now give the table with the addition of my figures, showing the relation of uric acid to urea on each diet:

	Urea.	Uric Acid.	Relation.
Mixed diet	32.4	1.1	1–29
Animal diet	53.1	1.4	1–38
Vegetable diet	22.4	1.0	1–22
Non-nitrogenous diet.	15.4	0.7	1–22

A long series of observations on the relative excretion of uric acid to urea has convinced me that a relation of 1–33—that is, 1 grain of uric acid for 33 grains of urea, is about the average or normal; and taking a long period a result somewhat near this is obtained. Thus in four months I excreted 41,804 grains of urea and 1,281 grains of uric acid, relation 1–32.6; but daily variations in this period ranged as high as 1–19, or as low as 1–45; but over a long period these more or less balance each other.

To apply this to the above table, it will be seen that on mixed diet there was slightly excessive excretion of uric acid; on animal diet considerably diminished excretion (retention), and on vegetable diet excessive excretion, some of the previous retention being washed out. And a continuance of the animal diet would obviously soon produce a store of uric acid sufficient to account for anything from a "bilious" to a gouty attack. The results in these tables are similar to those I have obtained with various diets, and the relation of uric acid to urea are just those I meet with in my everyday work.

I have been led to infer from all these facts, that while the formation of uric acid alters but little from its relation to urea of 1–33 (subject, I have no doubt, to some small variations), its excretion is subject to frequent and great fluctuations, which account for its action in the production of disease.

Iodide of Potassium has in five-grain doses but little action on the excretion of uric acid; in larger doses it acts apparently merely as an alkali. Iodine taken as a tincture has little or no direct effect.

Phosphate of Sodium is a well-known

solvent of uric acid, and it does, just as one would expect, greatly increase its excretion; it is probably the chief solvent of uric acid which is naturally present in the body.

Salicylates have the very important action of rendering the excretion of uric acid independent of acidity—that is, a rise in acidity does not cause retention while salicylates are present in the blood; and this fact may explain much of the value of these salts in diseases connected with uric acid (see discussion on my paper in the *Proceedings of Roy. Med.-Chir. Soc.*, January to March, 1888, p. 325).

Lead and Iron.—The urates of these metals are very insoluble, and they cause, as one would expect, retention of uric acid, which, as we shall see, may explain their action in several diseases (paper read at Roy. Med. Chi. Soc., April 28, 1888, reported in *Journal*, April 28; and also Sir A. Garrod, *Journal*, vol. i, 1883, p. 495).

Colchicum.—This indirectly lowers acidity and facilitates the excretion of uric acid. It may also have a direct action on the nerves in relieving the pains of gouty arthritis.

Besides drugs and foods, there are other ways in which the acidity of the blood and tissue fluids may be raised and retention of uric acid brought about, as for instance the formation of acids which are known to occur in dyspepsia; but a more important source of acids is probably to be found in the skin, for a large amount of acid is daily eliminated in sensible and insensible perspiration, and Sir A. Garrod (*Gout and Rheumatic Gout*, ed. iii, p. 258) has shown that when this function of the skin is checked by cold the acidity of the urine at once rises, and *vice versa*, and I have often repeated this experiment, both intentionally and unintentionally, on myself. The application of these facts to the causation of gout by exposure to weather or other sources of chill is sufficiently obvious, and is precisely similar to the case of beer, wine, meat, etc., previously spoken of.

And now to apply some of these results to the explanation of the disease.

The causation of headache of which I have spoken is, I think, fairly well worked out; it can be produced at any time in those subject to it by causing a *plus* excretion of uric acid with alkalies, the *plus* excretion and headache being, as I believe, the signs of excess of uric acid in the blood. If there is no store of uric acid in the body, alkalies will fail to produce either the *plus* excretion or the headache. I have also found an identical uric-acid fluctuation in some cases of epilepsy (*Neurol. Cent.*, March 1, 1888), and I think it probable that uric acid may be the cause of the fits in these cases just as it is of the headache of which I have spoken. Sir A. Garrod (*Gout and Rheumatic Gout*, pp. 459–61) pointed out many years ago that he had found blood drawn during fits of epilepsy to contain excess of uric acid, and this observation affords important support to my belief that we may safely argue from excess of uric acid in the urine to its excess in the blood.

Diet and drug action also affords many important parallels between the headache of urid acid and epilepsy. Thus, the value of a vegetarian diet in epilepsy is amply attested, and I believe that not a few of those engaged in its treatment habitually order their patients to abstain from meat.

Iron is believed by many to do harm in epilepsy, and lead-poisoning sometimes causes epileptic fits. Iron, so far as I know, does harm in the uric acid headache; and both these metals cause, as we have seen, retention of the uric acid.

In a considerable number of cases the fits have been treated by diet and drugs intended to influence the uric acid factor, and so far with some apparent success; but as it is almost impossible to say when a fit has been caused and when it has been prevented, epilepsy presents a problem which is much more difficult to solve than that of the urid acid headache.

I have also been much struck by the large number of cases of epilepsy which

have a strong family history of gout, rheumatism, or minor uric acid troubles.

Another result of my research is the conviction that a considerable amount of hypochondriasis, heaviness, depression, and irritability may be produced by causing a rush of uric acid into the blood and its excessive secretion, and that the same conditions may be cured or made to give place to the opposite feeling by driving the uric acid out of the blood by an acid, or something that causes retention. There is here, again, an important parallel between epilepsy (*Neurologisches Centralblatt*, March 1, 1888, p. 4) and the uric acid headache; for both are preceded by retention of uric acid, and, preceding both, certain bright and joyous feelings (*loc. cit.*) have been noticed, no doubt corresponding to this detention, just as they correspond to it when it is produced by acids.

And these mental effects of uric acid have led me to think that some forms (especially the paroxysmal ones) of melancholia and mania might yield some results to an investigation of their uric acid connections, though no doubt, in all such diseases, what may be at first functional and due to uric acid is at last associated with vascular and organic change which is incurable.

In this connection, it is very interesting to note that Dr. Broadbent, in his Croonian Lectures of 1887, says: "An unbroken series of gradations may be traced from the irritability and depression of spirits attending functional disorder of the liver up to complete melancholia with delusions"; and he further says this is accompanied by *plus* tension (of pulse), which, if not the cause, is at least an index of the condition of the system on which the mental state depends. These observations are of double interest to me—first, because of the unbroken series of gradations traced from conditions I can produce up to serious mental disorder; and, secondly, because they tend to confirm an opinion I have held for some time, that a high tension pulse is, to some extent and in the absence of other obvious causes, an index of excess of uric acid in the blood.

The relation of gout and uric acid is not a matter of doubt; but my researches give, I think, a better explanation of its intimate pathology than was previously obtainable by showing the way in which urates come to accumulate in the body, and that this accumulation is for the most part due to acids. We have also seen that acids may be introduced from without in food and drinks, may be formed internally in dyspepsia, or may be retained by deficient skin action, and that the result of the rise of acidity from any such cause is a retention of uric acid.

Sir A. Garrod has shown it to be probable (*Gout and Rheumatic Gout*, p. 292) that the cartilages and ligaments of joints are, not only to some extent extra-vascular, but are also less alkaline than the blood and tissue fluids; so that we can at once see why uric acid, which is brought to these parts in blood less than usually alkaline, should be liable to be thrown out of solution and retained in these parts, beginning generally in the smaller peripheral joints where the circulation is least active; and the same reasoning thus applies to retention of uric acid in the joints as was previously used in regard to its retention in the liver and spleen (*Journal of Physiology*, pp. 213, 214), and we now see how a dose of iron, causing retention, or a rise of acidity however produced, may precipitate an attack of gout. Also, why a uric acid headache, or an attack of melancholia or mania, may promptly clear up on the supervention of a gout attack; for the rise in acidity which drives uric acid out of the blood and cures either of the first two diseases drives it into the joint and produces the podagra.

Exercise rather tends to prevent gout, because it increases skin activity, which again reduces acidity and promotes elimination of uric acid; and the same skin activity, no doubt, explains why those who suffer from uric acid headache have less of it in summer than in winter. With rheuma-

tism we stand on less firm ground, because uric acid has not been proved to be in excess in the blood in this disease; but I hope I shall be excused for believing, at least till careful investigation has proved the contrary, that with the help of the knowledge we now possess about the excretion of uric acid it may yet be found to be in excess in the blood in this disease.

The marked effect of salicylates in acute rheumatism seems to me a very strong point in favor of uric acid causation, and in favor of the disease being due to retention of uric acid by acids, the vicious circle being at once cut through by the salicylate, which permits its free excretion. There are, besides, important connections in the matter of family history, and in effects of drugs, meat, beer, weather, and exercise between gout and rheumatism which are not to be easily disposed of, except on the theory of a similar causation.

Why uric acid should produce in one patient gout, in another rheumatism, in a third headache, and in a fourth epilepsy, may depend to some extent on the time during which it is in excess in the blood, and the amount of such excess; but, beyond the uric acid, there are no doubt peculiarities in the structure and function of nerves or vessels in each individual which determine the point on which the poison shall act most forcibly, and so to some extent the result it produces; but, in all these diseases alike, such regulation of diet, exercise, clothing, and climate as shall prevent high acidity from bringing about continued retention and accumulation of uric acid will serve to keep off attacks, even though the other factors remain in operation.—*The British Medical Journal.*

PRELIMINARY NOTE UPON A NEW METHOD OF TREATING YELLOW FEVER.

BY GEO. M. STERNBERG,
Major and Surgeon United States Army.

In view of the recent announcenent that yellow fever has reappeared in Florida, and the possibility that it may soon prevail as an epidemic in that State, the writer has decided to report the favorable results recently attained in the treatment of the disease in Havana by a method proposed by him, although the number of cases is still comparatively small.

My recent researches in Havana have led me to think it very probable that in yellow fever, as in cholera, the specific micro-organism causing the disease is located in the alimentary canal. While this is not proved, it is demonstrated that, as a rule, no micro-organism capable of development in the culture-media usually employed by bacteriologists is present in the blood or tissues of those recently dead from yellow fever. This view naturally suggests intestinal antisepsis as a mode of treatment.

It is well known that in yellow fever the urine and the vomited matters are highly acid. I have also found the intestinal contents to have usually a more or less decided acid reaction. A microbe, therefore, capable of multiplying in the stomach and intestine in this disease must be able to grow in an acid medium. But aside from this theoretical reason for prescribing alkalies, the highly acid condition of the secretions furnishes an indication for such a treatment, and the writer has long desired an opportunity to see a thorough trial of a decidedly alkaline treatment.

These considerations induced me during a recent visit to Havana to propose the following formula:

R. Sodii bicarb. grammes x (gr. 150).
Hydrag. chlorid. corrosiv. centigrammes ii (3·10 gr).
Aquæ puræ, litre i (1 quart). M.
Sig.—50 grammes (about 1¾ oz.) every hour; to be given *ice cold*.

This treatment was adopted by Dr. Raphael Wiess, house physician at the Garcini Hospital, and I have just received from him a record of twelve cases treated by the director of the hospital, Dr. Francis Cabera, and himself.

The complete temperature charts sent to

me by Dr. Weiss sustain the diagnosis in all of these cases, and this is confirmed by Dr. Daniel M. Burgess, United States sanitary inspector at Havana, who writes me:

"HAVANA, July 18, 1888.

"MY DEAR DR. STERNBERG: I send you by this mail Dr. Weiss's report of twelve cases treated by the alkaline and bichloride method. Although they were all Spaniards, and were not directly under my care, I had sufficient supervision of the cases to satisfy me that they were all genuine yellow fever. It will be seen that they all recovered, and I will add that every case so far treated at the Garcini by that method has recovered. While these twelve cases were being treated, and a little before, eight cases were treated in the same institution by other methods, and five of the eight died."

Dr. Weiss writes me that in some of the more severe cases he increased the amount or bichloride to five centigrammes ($\frac{3}{4}$ gr.) per litre. He says:

"Administering to the sick the bichloride of mercury, according to your directions, the gastric phenomena are very much modified; the gastric sediments appear later, and in no case have they been entirely dark. In some cases, truly dangerous on account of the state of the patient, in a general sense, gastric sediments" (black vomit) "did not appear, nor even nausea. The pains in the stomach were not so severe."

In some of the cases Dr. Weiss added benzoate of sodium to the formula for its laxative effect, and administered daily two enæmas containing each a gramme (15 grs.) of the phenate of sodium.

Sherry wine and hypodermic injections of ether were given during the second stage, when the pulse was feeble and the condition of the patient seemed to call for a stimulant.

With reference to the urinary secretion, Dr. Weiss writes—

"The urine has always been abundant. In some cases the density lowered, but was compensated by a large quantity of urine. Albumen did not appear in some of the cases; in others the amount was small, and in others it reached two grammes to the litre. The albumen has always disappeared on the second or third day, and then the fever ceased."

Although Dr. Weiss has sent me the clinical records of only twelve cases, he says in his letter—

"I have dealt with thirteen sick from the beginning of the disease, and all have recovered. . . . Before using this new treatment, during the present season, we had eight cases which we treated from the first day by the old method" (mainly symptomatic), "and five of the number perished."

This mode of treatment will, of course, require a more extended trial before the results can be fairly compared with those obtained by other methods. I may remark, however, that in similar cases treated by the "expectant" method, the mortality rarely falls below 20 per cent., and in hospital practice is often 50 per cent., or even more.

Whether the favorable results are to be ascribed to the alkali, or to the antiseptic action of the bichloride, can only be determined by testing the two remedies separately; but I am very much disposed to ascribe the unusual absence of gastric disturbance, and the abundant secretion of urine noted, to the alkaline element of the treatment, and it is extremely doubtful whether the bichloride reaches the intestine in sufficient quantity to exercise any decided antiseptic effect in that portion of the alimentary canal. The bicarbonate should be free from carbonate of sodium, as the mercuric chloride is decomposed by this salt and by alkalies generally. It is possible that the biniodide might be substituted to advantage in the formula above given.

In some experiments made by the writer several years since to determine the comparative antisepetic value of the salts and oxides of mercury, the following results were obtained:

	Active.	Failed.
Biniodide of mercury	1 to 20,000	1 to 40,000
Bichloride of mercury	1 to 15,000	1 to 20,000
Protiodide of mercury	1 to 10,000	1 to 20,000
Yellow oxide of mercury	1 to 1,000	1 to 2,000
Black oxide of mercury	1 to 500	1 to 1,000
Calomel		1 to 100
Blue mass		1 to 100

"In every case the antiseptic was carefully weighed and added to one hundred cubic centimetres of beef-peptone solution, or of veal broth. A similar quantity of the culture-fluid was put up as a *temoin* without the addition of the antiseptic. As the oxides and iodides of mercury are insoluble in water, the bottle was repeatedly shaken in order to dissolve in the albuminous culture-fluid as much of the antiseptic as possible. An undissolved remnant could, however, be recognized at the bottom of the bottle after this repeated shaking. Two drops of broken-down beef-stock were added to each bottle to cause speedy putrefaction of the culture-fluid in the absence of a sufficiently potent inhibition of the developing power of the bacteria of putrefaction. In every case in the comparative experiment the culture-fluid became clouded, and had a putrefactive odor at the end of twenty-four hours.

"The first column in our table shows the proportion in which the culture-fluid was preserved from any appearance of decomposition for at least a week, the duration of the experiment. In the proportion given in the second column a decided inhibiting power was shown, except in the case of calomel and blue mass, which, in the proportion given (1 to 100), gave no evidence of antiseptic power. The other salts and oxides in the list prevented decomposition for twenty-four hours in the proportion given in the second column; and it was not until the second day that the bacteria of putrefaction commenced to form a cloud at the upper surface of the fluid, which gradually extended until the fluid had entirely broken down, usually by the third or fourth day. The bottles containing the biniodide (1 to 20,000) and the bichloride (1 to 15,000) have now been standing in the laboratory for three weeks, and are as transparent and free from odor as the day they were put up."*

The bichloride, the biniodide, and the oxides of mercury exhibited a decided inhibitory—antiseptic—effect upon the development of the bacteria of putrefaction in the proportion given in the second column, and we may use these figures as a guide in our efforts to secure intestinal antisepsis by means of these agents; although it is, of course, very uncertain how much of the soluble mercuric salt introduced into the stomach reaches the intestine in an active form—probably very little. In the formula which I gave to the physicians of the Garcini Hospital the amount of bichloride prescribed is really only in the proportion of 1 to 50,000 parts of the solution; but I considered it advisable to commence the treatment with an amount that was entirely safe, and to increase the dose afterwards if it was found to be prudent and desirable to do so. Dr. Weiss has, in fact, increased the dose in several severe cases to five centigrammes per litre—1 to 20,000. As all of these cases recovered, we may infer that when largely diluted, as in this formula, and given in small quantities at short intervals, it may be safely administered in these doses; but, as already intimated, I am rather disposed to attribute the favorable course of the disease to the full alkaline treatment than to any antiseptic effect of the bichloride in the intestine. In the stomach, however, I should expect a decided antiseptic effect from the medicine as administered; and perhaps this is, after all, what is most needed.

JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.

*From report of Committee on Disinfectants of the American Public Health Association, 1885.

WHAT KILLS THE CHILDREN.

Ignorance kills the children. Now and then accident lends a hand, as when some poor toddler tumbles into boiling water, or a weary, restless mother rolls

upon her infant and stills its cries forever. But ignorance does the business generally, blind giant that he is, always ready to seize the pillars of everything and turn bright places of joy as dark as buried Babylon. Tradition clutches the hapless infant the moment it is born, and decrees that it shall be immersed in water. The prenatal environment has a temperature of about a hundred degrees. This cold world boasts of any temperature it pleases. That of the bath is also a movable feast. Under the circumstances, the custom of washing the new-born is not unlike, in effect, the refinement of cruelty that would grasp a man from his bed and thrust him ruthlessly into a snow-bank. The fact that childbirth is an exhausting process, even to the baby, is too often ignored. Time is required for necessary reaction. The little one needs repose as well as its mother, a good rest at the start to insure some health and strength for its future guerrilla warfare with life. If it were let alone, sleep would generally follow its preliminary outcries. But no; custom says the little pilgrim must be scrubbed, and scrubbed he is. He survives—as a general thing. But "How did my lamb get that dreadful cold and those bad eyes?" and "How he cries with colic!" It is possible to manage better, as, for instance, in the Maternity Department of the Woman's Hospital in Philadelphia. There the eyes of new-born babies are washed with an antiseptic solution at the earliest opportunity. When the child is entirely born, it is left quiet on the mother's bed until the expulsion of all appendages, which usually occurs within an hour. The infant is then carried away just as it is, well wrapped up, and let alone. After the mother has received proper attention, the child is cared for. One loose garment and a diaper are all it is burdened with in the way of clothes. Warmly covered, it is laid away in a little bed by itself, and neither washed nor dressed until twenty-four hours have elapsed, when it is carried to the baby's bath-room (which is properly heated), and there its toilet is performed for the first time. The physician in charge states that since this plan has been adopted the babies thrive to a far greater degree and cry less. This method is at once rational and natural, and would seem to need no defense.

The maternal physique has some subtle, indefinable influence over young children, a health-giving power not at present well understood. The new baby is still in a certain sense a part of its mother, although a separate unit. Its well-being requires close contact with her during the greater part of the twenty-four hours. A bed by itself is an injustice to helpless infancy. It is paterfamilias who should seek another resting place, not the new life as yet so frail and insecure. Only those who have tried this natural method can thoroughly appreciate its advantages and realize how admirably it insures the happiness of three persons. The child can be cared for during the night without exposure or any sudden chill. Always warmed and protected by a loving presence, the little one sleeps long and well. After the weaning period, the baby has his own bed as a matter of course. Until then, an undisputed half of the maternal couch is a necessity to the embryonic citizen, if he is to grow into that relative perfection of health and strength which nature has intended for him. The human mother is the only animal that puts away its young at night, probably because the right kind of reason has not yet taken the place of half-eradicated instinct. The hen gathers her brood under her wings; the mother bear forms herself into a sort of animate woolly nest about her cubs, just as the cat's body embraces her kittens. Our cousins of the lower orders may not be such bad examples to follow, after all. At any rate, why not give those "wonderfu' weans" the benefit of the doubt?

The slaughter of the innocents goes on in different ways. Emotional prodigality is a most efficient means of removing the

joys of a household. "Died of too much grandfather, grandmother, uncle, and aunt" would be a fitting epitaph for many a bright child. Emotion is the most exhausting of all mental attributes. What children do, and how much, is of far less importance than the way in which they do it. The evils of premature mental activity are without doubt very great; but to prematurely and unduly excite emotional manifestations is tenfold more hurtful. In this regard there seems to be the densest ignorance. The fact that young children's only business in life is to develop slowly—to eat, sleep, and play in childlike fashion—is too often forgotten in the home circle. On the contrary, they are supposed to attend to their own work of growing and developing and afford fun for the family at the same time. Our tender little ones are made the play-things of the household—hugged, kissed, talked to, and made to talk, for the pleasure and gratification of the parents and friends. Their callow brains are overworked by exciting and intense emotion. What wonder they have big heads, little bodies, and hardly any digestion at all! Feebleness, asymmetry, excitability, premature arrest of growth, are some of the evils resulting from this continual tension selfishly imposed by thoughtless grown folk upon unresisting childhood. To what extent the influences under consideration can reach is, perhaps, known only to those who are in actual contact with large numbers of children and who have made the subject of very young Americans something of a study. * * * —*The New York Medical Journal.*

CLINICAL FEATURES IN THE HISTORY OF SEVERAL CASES OF EXTERNAL ANTHRAX (MALIGNANT PUSTULE) AMONG WOOL-SORTERS.

Under the care of Samuel Lodge, M. B., B. S., Dunelm.

CASE I.—J. W. M., æt. 26, an overlooker in the washing department for camel's hair, on August 2, 1887, consulted me for supposed barber's itch. On examining his right cheek I saw a black eschar about the size of a shilling surrounded by a raised red border, with a purplish, œdematous, and indurated areola. The base was thickened and indurated, and could be felt through the mouth to be considerably larger in extent than the black eschar. There was no fœtor. Slight glandular enlargement.

Previous History.—On July 29, whilst being shaved, his barber cut the top from an ordinary acne pustule. On his way next morning to work amongst the camel's hair, he once more pulled the top off the spot on his cheek. He remembered touching it several times during the morning whilst at work, as it was irritable. The same evening he felt aguish, and suffered from marked febrility. The sore had a dark red base, was angry looking, itched, and burned.

State on first Consultation.—Anxious look on face; skin rather dry. Temp. 100.5°. Tongue clean and moist. Pulse 90. Resp. 23. Patient was told the exact nature of the case, and its contagious power was explained. Pustule was dressed with my father's antiseptic vegetable silk, impregnated with boracic acid, and occasionally swabbed over with corrosive sublimate solution, 1–1000. Microscopically I detected the bacillus anthracis in the serum from the wound. Later I asked Dr. Hime, as Medical Officer of Health, to see him, with me, and he cultivated the bacilli most successfully.

On the 31st of October there was no trace of original lesion in cheek except healthy cicatrix.

CASE II.—Samuel G., 21, van mohair sorter. On Friday night a papule about the size of a pin's head appeared on right upper eyelid. The same evening papule became vesicular, and had a bluish areola.

Saturday morning.—Patient could hardly see, on account of œdema. Saw a chemist who told him it was erysipelas, and prescribed for him.

Sunday morning.—Pustule larger, congestion increasing, cervical glandular enlargement. Characteristic black eschar on pustule. General symptoms much worse. Head, neck, mouth, and chest on same side all swollen.

Tuesday.—Could not see out of either eye, pustules on bùccal mucous membrane, saliva dribbled from mouth. Incisions made into congested tissues. Additional symptoms were slight cough and dyspnœa.

Wednesday morning.—Increasing glandular enlargement. Congestion much relieved by deep incision. In the evening, rigors, incessant vomiting, marked delirium, diarrhœa, with "meat washings" stools every ten minutes. Patient died next day.

Pustules in mouth seemed to be secondary pustules. General anthrax seemed to supervene, also complicated with intestinal anthrax (mycosis intestinalis), judging from "meat washings" stools.

CASE III.—Pustule commenced on eyebrow. Similar in character to Case II, and ended fatally.

CASE IV.—Arm accidentally injured whilst at work. Patient wore a cadaverous expression. Pulse at wrist imperceptible. Arm considerably enlarged (15 inches over biceps). From subcutaneous emphysema, due probably to decomposition of subcutaneous fat, the arm was dry and papery-like—a needle passed through skin as if into a hollow body. Cicatrix of recent wound dried up and scaly-looking. Temperature in mouth 95°. Suppression of urine. Collapsed but sensible, answering questions coherently. Supra-clavicular glandular enlargement.

Autopsy.—Nothing of importance beyond characteristic blueness of extremities (first described by my father in 1855).

CASE V.—Malignant pustule situated on the arm, similar in character to last, the whole limb rapidly swelling and losing heat. Man recovered finally, but with an impaired constitution.

CASE VI.—A revolving band stripped the tissues from the forearm of a young woman almost to the bone. After the wound filled with healthy granulations, a typical malignant pustule commenced on the raw edges and spread eccentrically, and before the wound was filled up the pustule had disappeared. The raw surface kept healthy all the time. It seemed worthy of notice first, that the disease never attacked the raw surface, but only spread eccentrically in the skin. Secondly, the spreading in the skin agrees with the ordinarily observed cases, and accounts for the frequency with which the diagnosis of erysipelas is at first made. The contrast between the infiltration of noma and malignant pustule is here shown to be very great.

CASE VII.—Condition of patient at first visit: Three large vesicles, not unlike herpes in character, but unlike it in distribution, as one pustule was situated on the top of the right shoulder, another over angle of left scapula, the remaining one midway between the other two. The gentleman who first saw the case remarked that "it was the queerest vesicle he had ever seen, and thought herpes resembled it most, but could not understand the vesicles being larger than a shilling, and why there should be such great œdema and constitutional symptoms." He further added that "the resemblance in the symptoms in this case to those in some cases of snake-poisoning in the Australian bush was very striking." The patient died in three days.—*Medical Press and Circular.*

EFFECTS OF MENTAL OVER-WORK.

A COMMON FORM OF ILLNESS WHICH IS GENERALLY DISREGARDED.

Some interesting though not novel observations on the symptoms of mental fatigue were discussed at a recent meeting of the Anthropological Society. The result of these investigations goes to prove that weariness of mind, the result of work,

like other forms of exhaustion, is recognizable under the two different though related aspects of irritability and incapacity. Further careful inquiry into the same subject would probably show that here, as elsewhere, the former of these conditions is introductory to the latter, and is the natural sequel to that stage of apparently successful overaction which is seen when an organ still fully capable is unduly stimulated.

The observations referred to were culled from a series of reports by school-teachers, and included details of their own sensations as well as of the children under their care. The signs of mental irritability were apparent in sleeplessness and nervous laughter; of fatigue, in sleepiness and incapacity for task work. Lolling, yawning, and a languid manner told that the will was flagging. Headache suggested overstrain in study combined with defective ventilation, and perhaps a too sparing diet; while some curious facts bearing on the causation of color-blindness and somnambulism were also noted. Thus, in one case the blue-color perception was for a time obliterated, and the sufferer from this defect found herself painting ivy leaves a bright orange; while in another a student, having retired to rest on the eve of an examination, awoke at his desk to find that he had been busily engaged in drawing humorous cartoons relating to a former conversation. Here we have an instance of cerebral irritation due to overwork which suggests a somewhat close connection between dreaming and somnambulism, and affords a clue to the physiology of the latter condition.

Overwork, both mental and bodily, is at once the most general and the least regarded form of illness to which we are liable in the present age. Do what we may, it is next to impossible to escape from it; but there is, at all events, a certain satisfaction in being able to recognize its features. We must not forget, however, that it is also to a considerable extent a preventable evil, and it is certainly a matter for satisfaction that this fact is not ignored by the reforming party in the Legislature. Its treatment in individual cases requires chiefly that due attention be paid to the two great essentials of timely rest and wholesome diet. Work, however irksome, may, it is generally allowed, be undertaken on a liberal scale if only it be not too continuous, but is broken by timely and adequate intervals of rest. The value of a plain and liberal dietary is hardly less, and we may take it as a maxim for the times that, so long as appetite and sleep are unimpaired there is no dangerous degree of overwork, and, conversely, that a failure in either of these respects should be regarded as a warning signal, to which attention should be paid by relieving the strain of exertion.—*Lancet.*

PSYCHOLOGICAL LABORATORIES.

The study of psychology as an experimental science is likely to advance, considering that laboratories for research have been, or are now being, established in many of the Continental towns and in America. Among these we may mention Leipzig, Berlin, Bonn, and Göttingen; in America, at Johns Hopkins, Harvard, Pennsylvania, and Princeton; while at Cambridge we have the anthropological laboratory which Mr. Francis Galton has done so much to establish. Many phenomena concerning mental action are capable of being reproduced for the purposes of accurate study and comparison with the hope of attaining exact knowledge. Some of the most valuable results have been obtained in studying simple phenomena, as seen in children; but experiment is wanted as a means of keeping certain conditions constant, and for obtaining records of phenomena capable of objective examination and measurement. Dr. James McKeen Cattell, of the University of Pennsylvania, has given an account of the work done in the psychological laboratory of Leipzig in *Mind*, January, 1888.

Experiments have been made as to the measurement of sensation, both by varying the pressure upon parts and by determining the variations in illumination that can be appreciated by the eye. Sound and light have both been used in investigations as to the relations between stimulus and sensation. Many researches have been undertaken to determine the duration of mental processes; there is no doubt that mental processes take up time, and that this time may be measured. It would be very interesting to learn whether, in the course of evolution in man, the physical processes which correspond to thinking have become shorter or longer, or have remained unchanged. There is no doubt that the interval between stimulus and response varies much in different persons. Dr. McKeen Cattell concludes by saying: "The results obtained in the Leipzig laboratory during the past seven years have been briefly noticed. They prove conclusively that it is possible to apply experimental methods to the study of mind. The positive results are, besides, not insignificant, and will compare favorably with what has been accomplished during the same period in many chemical, physical, and physiological laboratories. An increased interest is everywhere being taken in experimental psychology, and we may hope that we shall some day have as accurate and complete knowledge of mind as of the physical world." It is to be hoped that, in the arrangement of the Royal Colleges for providing laboratories in London, place will be found for the encouragement of research in the departments of physiological psychology and anthropometry, and that in a few years the reputation of the work in this department may be such as may partially remove the indebtedness of England to other countries. —*The British Medical Journal.*

LANOLIN AND ITS IMITATIONS.

German medical literature contains frequent testimonials from clinical observers of the extended uses of lanolin as an unguent basis in the treatment of skin diseases, the therapeutic application of inunction to the treatment of constitutional diseases, as an obstetric application in the treatment of wounds and cuts, and cosmetically in the prevention of sunburn and freckling, and even the "prevention of wrinkles." Professor Oscar Liebriech's most valuable and original addition to our storehouse of therapeutic resources is, however, subject to the usual drawback which attends the introduction of any novel and useful substance, by the occasional substitution of imperfect imitations and inferior products simulating lanolin, at least in title, which produce deleterious effects. Dr. G. Meyer, of Berlin, reports to the following effect in the *Deutsche Med. Wochenschr.*, No. 19, 1888: A man, aged 38, had a hard chancre in 1875, and was treated in the Charité Hospital, Berlin, and elsewhere for relapses, during the next five years. In June of last year he suffered from hoarseness and swelling of the testicles. Amongst other treatment, the following ointment was applied to the testicles: pot. iodid. 1 gramme; lanolin, 10 grammes. The word "lanolin" was written without any affix. Severe acute dermatitis of the scrotum followed, with great swelling, redness, and burning heat of the skin. The penis participated. The man could not walk about, and, therefore, left off work. The inflammation, he said, set in after the fourth infriction. The general health was not affected; the penis, as above said, shared in the inflammation, which affected both sides of the scrotum. Epididymitis was excluded accordingly, and suspicion rested on the ointment. More of this was ordered as before, for examination only, and it smelt "acid and rancid." The skin remained like thick leather for some time. An ointment of one part of potassium iodide in ten parts of lanolin puriss. (Liebreich) was then rubbed in by Dr. Meyer himself. The skin was distinctly thinner two days afterwards, without any trace of irritation by the ointment. The

previous inflammation was due, there is no doubt, to the rancid lanolin used, for all sorts of lanolin, except Liebreich's, contain several fatty acids. The percentages of these in various samples of lanolin are given in the *Deutsche Med. Wochenschr.*, No. 28, 1886, as 33, 26, 17, 16, 16; in Jaffé and Darmstaedter's lanolin, 0.5 to 1.—*The British Medical Journal.*

THE VALUE OF DIAPHORESIS IN INFECTIOUS DISEASE.

A moist skin during the course of infectious and acute diseases has from a very early period in the history of medicine been regarded as a desirable symptom. For the purpose of showing the value of the *rôle* played by the skin in such cases Queiroco, of Genoa, has just published some interesting results of experiments made with sweat upon animals. It is, of course, a point upon which no difference of opinion exists, that the sweat is a potent means by which the materies morbi are eliminated from the organism. The chief cause of the diseases, in the form of toxic elements, ptomaines for example, are dissolved in the sweat, and so extracted from the body. The author collected some sweat from cases of variola, articular rheumatism, typhoid fever, etc., and injected it into various animals. The result of the experiments was that the animals in all cases died. Experimenting, however, with normal sweat taken from healthy men and injecting it into animals, under the same conditions, he found that nothing happened. Thus the value of the old Hippocratic injunction, which makes the administration of plenty of liquids an important element of treatment in acute diseases, is confirmed. It would be interesting to know what, if any, micro-organisms are contained in the sweat of patients suffering from infectious diseases, and whether the fatal results in the animals could be in any way attributed to the effects of microbic invasion through the injections of sweat.—*Medical Press and Circular.*

CASCARA SAGRADA IN RHEUMATISM.

Dr. Goodwin, of the United States Marine Hospital Service, has discovered that cascara sagrada possesses remarkable powers for the relief of rheumatism. Encouraged by the results accidentally obtained on his own person, he tried it on a number of patients suffering from well-marked rheumatic manifestations, most of whom had been treated with more or less unsuccess by means of the salicylates, iodides, etc. Within twenty-four hours he was surprised and gratified to find a marked improvement in every case. One particularly striking case was that of a Swedish soldier, who had been suffering intensely for three months, none of the usual remedies affording him more than transient relief. Fifteen-drop doses of the fluid extract of cascara sagrada three times a day produced a marked improvement in forty-eight hours, and by the seventh day he had so far recovered that he received permission to walk out. From that date he steadily improved and made a satisfactory recovery. In some cases it may advantageously be combined with salicylate of sodium. The action on the bowels was seldom excessive, and the laxative effect usually produced was a distinct advantage. Dr. Goodwin confesses himself unable to explain the action of the drug in relieving rheumatism, but this, after all, is not of much importance if only his conclusions bear the test of experience.—*Medical Press and Circular.*

THE AMALGAMATION OF DUBLIN MEDICAL SCHOOLS.

The scheme of amalgamation which we alluded to last week has been finally revised by the Special Committee of the Council of the College of Surgeons and has occupied the Council for a day's discussion. We understand that very satisfactory progress

has been made with it, and that its promotors are saguine that it will shortly receive the *imprimatur* of the Fellows of the College and of the Lord Lieutenant, whose function it will be to approve the needful changes in the College by-laws. If the progress of the scheme is undisturbed, the Carmichael and Ledwich Schools will cease to exist as separate institutions, and will work in conjunction with the School of the College from and after next session, but it will not be possible to arrange for the accommodation of the whole of the students on the College premises, and therefore the Carmichael College will remain open for certain departments of study until such accommodation can be provided.—*Medical Press and Circular.*

FUGITIVE IODISM; ŒDEMA OF EYELIDS.

Dr. F. Hewkley, in the *British Medical Journal*, says, W. J. H., æt. 30, on May 7, complained of frontal neuralgic headache, which had varied in intensity during the preceding ten days. He could not bring to mind having had headache before, but had been, during several years, inconvenienced by an irritable catarrhal condition of his fauces and naso-pharynx. Having applied a chloroform preparation of aconite root with a camel-hair pencil horizontally to the forehead from side to side, a full inch above the eyebrows, I prescribed as follows: R. Liq. ferri iodidi, 1½ drachm; aq., 5½ ounces; ½ ounce ter. Soon after the second dose, the patient felt a severe cold had come upon him quite suddenly—sneezing, a very copious and steady flow of watery fluid from the left nostril, sufficient to saturate two handkerchiefs. This ceased in one hour as abruptly as it had occurred. Coincident with its cessation a puffiness of the eyelids on the corresponding side ensued; this increased, and on retiring the patient's lids were completely closed. He slept well, and the morning following, his eye presented the appearance of having been stung by an insect, as described by Dr. Tom Robinson. The left eyelids, both upper and lower, were equally tumid with a semi-transparent rosy fullness, which the patient said was less than on retiring the night before. There was neither subconjunctiva œdema nor any discharge from between the lids. The conjunctiva presented a diffuse pinkness. Over both cheeks, but nowhere else on the body, was an urticarial erythema, fainter on the left than on the right cheek. He felt well, his headache was gone. On May 10, the phenomena had completely vanished.

REMARKS.—Here is seen a person with a decided catarrhal dyscrasia suddenly attacked with fugitive œdema of the eyelids sequent upon a free catarrhal outpour from the nasal mucous membrane. So far, the symptoms being limited strictly to the one side lends weight to the idea that an extension of the same catarrhal process into the neighboring loose connective tissue, though this was not related by immediate continuity, had occurred. Another view may be taken—that the transient œdema of the lids was associated with an impediment in the course of the efferent lymphatic circulation occasioned by the turgidity of the nasal mucous membrane.

THE CURE OF CONGENITAL HERNIA AND HYDROCELE.

At the close of a lecture on this subject Professor L. G. Richelot draws the following conclusions:

1. In congenital inguinal hernias, as in all others, resection of the sac is one of the conditions of the radical cure.

2. Total resection of the inguinal sac is always possible, whether in kelotomy for strangulation or in radical cure made deliberately.

3. Resection of the vagino-peritoneal canal is always possible in congenital hernias without ectopia, as it is fixed at the external inguinal ring or sufficiently

movable to descend. It may be made so as to preserve the testicle and close the vaginalis around it. It is a delicate operation, but has no great difficulties.

4. Resection of the vagino-peritoneal conduit, without hernia, is also easily done, and under the same conditions, when a reducible hydrocele enables the operator to recognize the congenital disposition. It closes the serous canal that may become a sac, and has the value of a preventive radical operation.

6. A benign operation, and without mutilation, that delivers a young man from a great infirmity, is one that should be recommended.—*L'Union Médicale*, No. 52, 1888.

THE SEMIOLOGICAL VALUE OF AMPULLARY DILATATIONS OF THE SMALL LINGUAL VESSELS.

Dr. Gillot, of Autun, after a careful study of this subject, comes to the conclusion that ampullary or aneurismal dilatations of the sublingual capillaries occur almost exclusively in arthritic subjects, and that if all arthritics do not present them, they that have them are arthritic. Arthritism causes thinning the walls of small vessels. Whenever blood-pressure is increased, from whatever cause, cardiac hypertrophy, plethora, obstacles to respiration, etc., these aneurismal dilatations are subjected to strong tension, which may cause rupture. [But how many cases of such rupture are on record.] Every person, says Gillot, that has ampullary dilatations of the tongue may be suspected of having miliary aneurisms of the brain; and the consequences of cerebral hæmorrhage from this cause are well-known. The aspect of these miliary tumors of the tongue, their increase in size, their more or less deep color, often reveal to the physician the increased cerebral vascular tension, and should put him on his guard against threatening apoplexy. From an analysis of several hundred cases of cerebral hæmorrhage, Gillot claims that coexisting ampullary dilatations of the tongue were more developed or more numerous on the side of the cerebral hæmorrhage, and on the opposite side to the paralysis.—*L'Union Médicale*, No. 66, 1888.

TREATMENT OF BURNS.

Nikolsky claims to have had excellent success in the treatment of burns of the second degree with fomentations of the following:

Tannin.

Alcohol (95) aa 4 grammes.

Rectified sulphuric ether, 30 grammes.

The dressings are repeated two or three times a day. After the ether evaporates there remains a fine pellicle of tannin that causes prompt sedation of the pain and inflammation. The cure takes place much more rapidly than under the employment of collodion and other remedies in common use. The first dressing should be preceded by an antiseptic washing of the affected parts. The bullæ are punctured to allow the serum to escape, and the denuded surfaces are then powdered over with iodoform in a thin layer, and then dressed with the ether-tannin.—*Journal de Médicine de Paris*, May 20, 1888.

BOOK REVIEWS AND NOTICES.

A PRACTICAL TEXT-BOOK OF THE DISEASES OF WOMEN. By ARTHUR H. V. LEWERS, M.D., Lond., M. R. C. P., London; Assistant Obstetric Physician to the London Hospital; Examiner in Midwifery and Diseases of Women to the Society of Apothecaries of London, etc. With illustrations. Philadelphia: P. Blakiston, Son & Co. 1888. Chicago: W. T. Keener.

Lewers' text-book possesses the merit of simplicity and brevity to an extent that casts scientific thoroughness and completeness quite in the shade. The chapter on "Rupture of the Perineum" is a marvel of condensation. The whole subject, exclusive of treatment, is included within the limits of two pages, two-thirds of which space is devoted to central rupture. The only operations hinted at are the plain triangular ones; the only suture materials

mentioned are silk, fishing-gut and catgut, and the only indications given for operating are incontinence of fæces, or flatus, and the disability "on account of prolapse of the vagina, or uterus, for the patient to wear a vaginal pessary such as the ordinary India rubber ring." The chapter on "Diseases of the Fallopian Tubes" is very interesting and instructive, yet the following quotation is all that is given of the symptoms: "The patient complains of pains across the lower part of the abdomen, and it may, or may not, be worse on one side. She has dysmenorrhœa, and the regularity of the catamenia is disturbed. If the dysmenorrhœa dates from a particular confinement, or abortion, or if a history of gonorrhœa can be obtained, the probability of the tubes being diseased is strengthened." Recurrent attacks of pelvic peritonitis upon the slightest provocation; frequent alterations of patient's condition from one of comfort to misery; occasional sudden vaginal discharges followed often by relief; dragging along or reappearance of menses after their expected or temporary cessation, and attacks of rectal tenesmus or irritation might have received some notice as occasionally or frequently depending upon disease of the tubes.

Rapid dilatation by Hegar's dilators, is rightly given preference over more gradual methods, yet the existence of bladed dilators is not thought worthy of notice. Vulliet's method of dilatation by progressive plugging is not mentioned.

Version is described as a rotation of the whole uterus "round an imaginary transverse axis." Where this axis is, whether it is stationary or movable, and, if movable, whether its position changes the form of version, is left for the student to conjecture. Lateral versions and flexions are consistently ignored. As to pessaries we read, "For all ordinary cases where the use of a vaginal pessary is indicated, either the ring pessary made of watch spring covered with India rubber, or Hodge's pessary, will be found to meet every requirement." We do not object to the recommendation of these typical forms of pessaries, but rather to the dogmatic statement that they will "in all ordinary cases meet every requirement." In fact, the chief fault of the book seems to consist less in the inadequacy of the teaching than in the representation of the imperfect teaching as meeting every requirement.

Alexander's operation is rejected as dangerous and valueless, and is not described; nor is hysterectomy (either abdominal or vaginal), while the supravaginal amputation, which is recommended for all cases of carcinoma of the cervix, is given a full and satisfactory description.

In short, the book is neither a complete, even though brief, scientific exposition of gynæcology, nor is it a book of the primary class, in which the more simple and fundamental facts and truths of gynæcology are fully and adequately described for the student. It is neither a guide for the student nor practitioner, but is rather adapted to the use of the oculist, laryngologist, or other specialist who desires to have a superficial notion of gynæcology.

Many good things are in the book which testify to the originality and ability of the author, but it is unfortunate that he has endeavored in his book to make the study of gynæcology too easy, and has taken so little space for the undertaking.

ATLAS OF VENEREAL AND SKIN DISEASES; Comprising Original Illustrations and Selections from the Plates of Professor M. KAPOSI, of Vienna, Dr. J. HUTCHINSON, of London, etc., with Original text by PRINCE A. MORROW, A. M., M. D., etc. New York: Wm. Wood & Co. 1888. Fasciculi Nos. 3, 4, 5, and 6.

The new numbers of this valuable atlas, to which attention has already been called in these pages, are fully equal in point of merit to those which have preceded. The text is written with special care, and fully explains the several features of the diseases portrayed. The illustrations, both new and old, are of the highest value. And it should be said of the old that many of them appeared first in editions which are no longer accessible to the mass of American students and practitioners.

Fig. IV of plate XXVII is a fine example of the best work here shown. It illustrates an extensive cicatricial patch on the elbow of the patient, whose tuberculo-ulcerative syphiloderm is equally well displayed in the third figure on the same sheet. In the former the group of characteristic tubercles, the white, glistening, and corded cicatrix, even yet partly covered with the crusts furnished by the ulcerative process resulting in the scar, the anatomical curves of the elbow, and the flesh-tints of the arm are delicately and admirably reproduced. As we examine it, with the satisfaction which is always awakened by the study of faithful reproductions of nature, the suggestion is made that one day both scientist and artist will combine to give us a portrait of the skin where the several diseases capable of destroying its integrity have had their sway. An atlas giving us the several pictures, not of the scars of one or a few diseases, but of those of all diseases capable of leaving scars in the skin, would be a fitting complement of those now accessible.

The present work is to be commended from every point of view, and the publishers are certainly to be congratulated on the artistic merit of the plates.

FOURTEENTH ANNUAL REPORT OF THE SECRETARY OF THE STATE BOARD OF HEALTH OF THE STATE OF MICHIGAN FOR THE YEAR ENDING SEPTEMBER 30, 1886. Pp. L and 341.

Lansing, Mich.: Thorp & Godfrey, State Printers. 1888.

The excellent work which is being done in Michigan in the way of recording and reporting meteorological conditions, and contrasting them with the prevalence of various diseases, becomes increasingly impressive and valuable with the appearance of each new volume of these reports.

As is customary, the first part of this volume consists of a record of the official acts and meetings of the State Board of Health, together with reports of investigations of matters throughout the State which come under its jurisdiction.

The part of the volume which possesses the most interest for the profession at large is the contribution of the Secretary of the Board upon the causation of pneumonia. This is upon pages 246 to 324, inclusive. The number of tables and diagrams which accompany the article is very large, and the article itself is a very valuable and important contribution to the subject which it discusses.

THE APPLIED ANATOMY OF THE NERVOUS SYSTEM. A Study of this Portion of the Human Body from a Standpoint of its General Interest and Practical Utility in Diagnosis, Designed for use as a Text-Book and Work of Reference. By AMBROSE L. RANNEY, A. M., M. D. Second edition. Re-written, enlarged, and profusely illustrated. Pp. XXXV and 791. New York: D. Appleton & Company. 1888. Chicago: W. T. Keener.

He would be indeed a carping critic who failed to find warm words of praise for this book. The author was already widely and favorably known, and this his latest publication will bring him increased honor. It is well printed on good paper, and the illustrations are very numerous and excellent. Of course most of them are reproductions of the work of other men, but those which are original with the author are a great addition to the value of the book.

The general arrangement of the subject-matter is very satisfactory, and the treatment of the special topics apparently considers all of the available knowledge. The author's style is clear and attractive, and his explanations are exceptionally easy to understand. E. W.

THE YEAR-BOOK OF TREATMENT FOR 1887. A Critical Review for Practitioners of Medicine and Surgery. By many Contributors. Philadelphia: Lea Brothers & Co. 1888. Chicago: A. C. McClurg & Co.

This little manual is a valuable compilation from the domestic and foreign medical journals of the more important advances made in the treatment of disease, with a review by some most excellent authorities.

Each department of medicine and surgery has been fully and concisely treated.

Full reference has been given to every article quoted, which makes it of e pecial value to those who do not have access to the files of many medical journals. F. B.

A GUIDE TO THE PRACTICAL EXAMINATION OF URINE. For the use of physicians and students. By JAMES TYSON, M. D., Professor of General Pathology and Morbid Anatomy in the University of Pennsylvania; one of the Physicians to the Philadelphia Hospital; Fellow of the College of Physicians of Philadelphia, etc. Sixth edition. Revised and corrected. With a colored plate and wood engravings. 8vo. Pp. 253. Philadelphia: P. Blakiston, Son & Co. 1888.

That this little manual has reached the sixth edition is abundant evidence of its usefulness. It now appears again fully revised, embracing what is new and valuable pertaining to the subject, and omitting from its pages whatever has proved to be useless. The general plan and merit of the book are so well known to the profession that to outline it would be a formal introduction of an old friend.

BOOKS RECEIVED.

Henry's Posological Tables.

Transactions of the New York State Medical Association. 1887.

Medical Publications Harvard Medical School. 1887.

Fourteenth Annual Report of the Secretary of the State Board of Health of Michigan.

A System of Obstetrics by American Authors. Vol. I.

Annual of the Universal Medical Sciences. Issue of 1888. Charles E. Sajons, M. D., editor.

Practical Electro-Therapeutics. By William F. Hutchinson, M. D.

Manual for Hospital Nurses. By E. J. Domville, M. D.

Theine in the Treatment of Neuralgia. By Thomas J. Mays, M. D.

A Guide to the Practical Examination of the Urine. Sixth edition. By James Tyson, M. D.

The Applied Anatomy of the Nervous System. By Ambrose L. Ranney, A. M., M. D.

Reference Hand-Book of the Medical Sciences. Vol. VI. Edited by A. H. Buck, M. D.

A Practical Text-Book on the Diseases of Women.

By Arthur H. N. Lewers, M. D., Lond., M. R. C. P. Lond.

Anæsthetics; Their Use and Administration. By D. W. Burton, M. D., B. S.

A Clinical Atlas of Venereal and Skin Diseases. Parts I and II. By Robert W. Taylor, A. M., M. D.

Comparative Studies of Mammalian Blood. By Henry F. Formad, B. M., M. D.

The National Formulary of Unofficinal Preparations.

Atlas of Venereal and Skin Diseases. Fasciculi V and VI. By P. A. Morrow, A. M., M. D.

Intra-Cranial Tumors. By Byrom Bramwell, M. D., F. R. C. P. E., F. R. S. E.

PAMPHLETS RECEIVED.

Water: Its Impurities Gathered from the Air and Earth. By C. W. Moore, M. D.

The Orthopedic Treatment of Paralysis of the Anterior Muscles of the Thigh. By A. B. Judson, M. D.

On Exercise for Prevention and Cure of Deformities. By A. H. P. Leuf, M. D.

Vesico-Vaginal Fistula. By Reuben A. Vance, M. D.

Effects of Food Preservatives on the Action of Diastase, Pancreatic Extract, and Pepsin. By Henry Leffman, M. D., and Wm. Beam, M. A.

The Intra-Uterine Stem in the Treatment of Flexions. By A. Reeves Jackson, A. M., M. D.

The Causation of Pneumonia. By Henry B. Baker, M. D.

Die Entzündung der Peripheren Nerven, deren Pathologie und Behandlung. By E. Leyden.

Some Remarks on Opening the Mastoid Process. By Frank Allport, M. D.

An Operation for Simple Forms of Eutropium. By Frank Allport, M. D.

Rectal Insufflation of Hydrogen Gas. By N. Senn, M. D., Ph. D.

An Experimental Contribution to Intestinal Surgery. By N. Senn, M. D., Ph. D.

Fracture of the Sternum, with Dislocation of the Fragments. By B. J. D. Irwin, M. D.

Some Retrospective and Prospective Thoughts on Surgery. By Donald McLean, M. D.

Cocaine Dosage and Cocaine Addiction. By J. B. Mattison, M. D.

Tornado Circular No. 1. Signal Service, War Department.

Camp Hygiene. Pennsylvania State Board of Health.

Transactions of the Massachusetts Medico-Legal Society, Vol. I. No. 10.

Proceedings of the State Sanitary Convention of Pennsylvania. May 12 to 14, 1886.

Report of Proceedings of the Illinois State Board of Health. Quarterly Meeting April 19, 20, 1888.

Annual Report of the Department for the Insane of the Pennsylvania Hospital.

Report of the Department of Health of the City of Chicago, for the year 1887.

MISCELLANY.

THE NATIONAL FORMULARY.—A new "National Formulary" has been prepared by a committee of one from each State Pharmaceutical Association, appointed by the American Pharmaceutical Association in 1885. The purpose of the "Formulary" is to present an "authoritative standard" for the preparation of the floating formulas that have not heretofore been thought to possess sufficient merit to justify their recognition by the U. S. Pharmacopœia, and also of such new preparations as have acquired character and use since the last revision of the U. S. Pharmacopœia. *The Drugman* says: Every pharmacist is familiar with the trouble and annoyance which a want of uniformity in these migrating formulas occasions. Local variations causing slight difference in color, odor, or taste, have caused many a pharmacist to be suspected of having made a mistake. With a view of preventing as far as possible these annoyances, and for the more important purpose of establishing something like uniformity in the therapeutic strength and properties of these circulating formulas, this work was undertaken, and we presume it is fair to say that the book, whether good or bad, fairly represents the best American pharmaceutic talent at present. We have always believed that the work would retard rather than advance the principal purpose sought to be attained—uniformity. We have already a formulary prepared by a committee of physicians and pharmacists that has been universally received as authoritative, and no intelligent druggist considers it at all admissible to permit his officinal prepa-

rations to vary in strength or medicinal virtues from this recognized standard. It will certainly produce a great deal of confusion and mischief to have two standards, the pharmacist feeling authorized to follow his individual judgment in deciding which he shall obey in the preparation of medicinal compounds. The "National Formulary" will fill a want, and be very convenient until the next revision of the U. S. Pharmacopœia, when the trouble will begin. Many of the new formulas in the "National Formulary" will be adopted by the U. S. Pharmacopœia, with such modifications as the intervening experience may seem to render advisable. Some of these modifications will prove to be improvements, others will not, and where differences exist some pharmacists will prefer U. S. Pharmacopœia formulas and processes, and others the "National Formulary." We will thus have two standards, which is equivalent to no standard, and the object sought to be attained will be placed farther off. We can not have two standards. If they are identical, one answers every purpose; if they differ, the result will be damaging to every phase of medical progress. What we want is uniformity in officinal preparations—absolute uniformity as nearly as possible—and this can only be attained by following implicitly a single standard, and no departures from this guide should be considered proper or honorable except in isolated cases when proper explanations can be made. In the absence of uniformity the practitioner has no criterion by which to scientifically estimate the physiological and therapeutic effects and value of medicinal agents, and until this point shall have been attained medicine can never be a positive science. If the improved processes and floating formulas increase so fast that an official or semi-official collection is rendered necessary oftener than every ten years, let the U. S. Pharmacopœia be revised every five years. If none of the processes and formulas of the "National Formulary" could ever get in the U. S. Pharmacopœia, with modifications affecting their physical appearance or therapeutic strength and properties, there might be no objection to its existence on general principles; but this can not be prevented."

SULFONAL. — Regarding this hypnotic, discovered in 1886, Professor A. Kast, of Freiburg, says in the *Berliner Klinische Wochenschrift*, after trying it in sixty separate clinical cases, "Sulfonal deserves a prominent position among medicinal agents, not only as a hypnotic for producing temporary insensibility, but for its property of assisting the normal periodical want for sleep, and producing such where wanting; and furthermore because it produces no harmful effect on the elements of the blood; that it does not attack and impair the tissures of the alimentary channels; and that even in large doses it calls forth no dangerous disarrangement of the function of the heart or the vascular system."

Dr. Edward C. Huse, of Rockford, writes to say that in cases in which he has used salol (salicylate of phenol), in affections of the alimentary canal, as in cholera morbus and diarrhœa of children, the result has been so satisfactory that he regards it as a germicide of great value. On theoretical grounds he thinks it would be of much service in the treatment of cholera. He states that he was himself greatly benefited by taking it when suffering with inflammatory rheumatism, indicating usefulness in other conditions resulting from derangement of the digestive apparatus.

Messrs. Lehn & Fink, in "Notes on New Remedies," say: Gum Arabic, expensive and adulterated as it is now, can be advantageously replaced by casein in making emulsions. Cadet de Cassicourt was the first to direct attention to this substitute, and experiments have proved the value of his discovery. Emulsions prepared with casein remain permanent without separa-

tion of the oil, and have a pleasant taste, making the administering more palatable for the patient.

TOPICAL TREATMENT OF VARICES.—Robert gives the following formula:

Chloride of sodium.....1 gramme.
Dissolve in
Distilled water.....q. s.
Shake and add
Lanolin.....15 grammes.
Olive oil..... 5 "

For external use. Rub this over the region of the varicose veins three times a day.—*Revue de Therap. generale et Thermale.*

DIURETIC ACTION OF BEER.—R. Mori asserts that the diuretic action of beer corresponds only to that of a volume of liquid equal to one-third of the beer taken, and that more abundant diuresis is caused by wine. The diuretic action of beer and of alcoholic drinks should be attributed to the alcohol.—*Chemiker Zeitung*, 1888, XII, 32.

ANNOUNCEMENTS.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

CIRCULAR NO. III.

WSHINGTON, D. C., July, 1888.

The Committee of Arrangements takes pleasure in announcing to the members and invited guests of the special societies taking part in the Congress that the arrangements are sufficiently advanced to assure the success of the First Triennial Session of the Congress of American Physicians and Surgeons, which will be held in the city of Washington during the 18th, 19th, and 20th of September next.

A number of distinguished physicians and surgeons have signified their acceptance of the invitation to attend, among whom may be named Sir Spencer Wells, Sir Andrew Clark, Sir William McCormac, Drs. W. O. Priestley, William Ord, and Grainger Stewart; Mr. Lawson Tait, Mr. Victor Horsley, Mr. Thomas Bryant, Mr. Thomas Annandale; Professors Ferrier, Esmarch, and Gerhardt; Drs. Rafael Lavista, of Mexico; J. L. Reverdin, of Geneva; O. W. Holmes and H. I. Bowditch, of Boston; Joseph Leidy, of Philadelphia; W. Kingston and Eccles, of Canada.

The preliminary programmes of the participating societies have been published. It is hoped that the classified and final programmes will be forwarded without further delay. Several are already in possession of the committee. As soon as all are received, the final programme of the Congress will be printed and distributed.

Places of meeting for the Congress and each of the societies have been secured, conveniently located, so that members may interchange attendance without annoyance.

The meetings of the Congress will be held during the evenings, beginning at 8 o'clock p. m.; on the evenings of the 18th and 19th the meetings will be held in the main hall of the Grand Army Building, 1412 and 1414 Pennsylvania Avenue, and on the last (Thursday evening) in the hall of the National Museum. During this evening the Army Medical Museum and Library Building, alongside of the Museum Building, will be lighted and opened for the inspection of the members and invited guests. The meetings of the societies will be held during the day, according to the programme each may respectively provide. The sessions will be open to the profession.

On Monday evening, September 17, a dinner will be given by members of the Congress to the guests of the participating societies. Invitations to this dinner will be sent only to the specially invited guests who have indicated their acceptance. The contributing members will receive cards of admission. It will be limited exclu-

sively to members of the Congress and invited guests.

An informal collation will be served at Willard's Hotel on Tuesday evening, after the adjournment of the meeting of the Congress, to the guests and those members who may choose to attend. A similar entertainment will be served in the National Museum Building on Thursday night, after the final adjournment of the Congress.

Guests are requested to notify the chairman immediately after their arrival in Washington, giving their address, and stating whether they have ladies with them. Special arrangements will be made for the entertainment of the wives and daughters of the guests.

Hotel accommodations are ample, and conveniently located to the places of meeting.

The secretaries of the special societies are requested to forward to the chairman the names and addresses of their foreign guests.

Members of the Congress and their guests are expected to register. A parlor in Willard's Hotel will be provided for that purpose, from which the mail of the members and guests will be distributed, and at which the city residence of each member or guest can be ascertained.

All communications should be addressed to the chairman of the committee,

SAMUEL C. BUSEY, M. D.,
1545 *I St. N. W., Washington City,*
Chairman Committee of Arrangements.

THE American Orthopedic Association will meet in Washington, D. C., on September 18, 19, and 20.

THE next meeting of the American Rhinological Association will be held in Cincinnati, Ohio, in September.

THE fifth annual meeting of the American Climatological Association will be held in Washington, D. C., September 18, 19, and 20, 1888.

THE annual meeting of the Southern Surgical and Gynæcological Association will be held at Birmingham, Alabama, on September 11, 12, and 13, 1888.

THE twelfth annual meeting of the American Dermatological Association will be held at Willard's Hotel, Washington, D. C., September 18, 19, and 20.

AT the annual meeting of the American Otological Society, held at the Pequot House, New London, Connecticut, on Tuesday, July 17, 1888, the Society voted to adjourn till 11 a. m. of Tuesday, September 18, 1888, at the Arlington Hotel, Washington, D. C.

AT the annual meeting of the AMERICAN OPHTHALMOLOGICAL SOCIETY, held at the Pequot House, New London, Connecticut, on Wednesday, July 18, 1888, the Society voted to adjourn till 11 a. m. of Wednesday, September 19, 1888, at the Arlington Hotel, Washington, D. C., to take part in the Congress of American Physicians and Surgeons.

ANDREAS VESALIUS.

"Hippocrates has been styled the Father of Physic; Haller, the Father of Physiology; and Vesalius may fairly be considered as the Father of Human Anatomy."